

# NUCLEAR LAW BULLETIN No. 43

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This Bulletin includes a supplement

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

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*The OECD Nuclear Energy Agency (NEA) was established on 1st February 1958 under the name of the OEEC European Nuclear Energy Agency It received its present designation on 20th April 1972 when Japan became its first non-European full Member NEA membership today consists of all European Member countries of OECD as well as Australia Canada Japan and the United States. The commission of the European Communities takes part in the work of the Agency*

*The primary objective of NEA is to promote co-operation among the governments of its participating countries in furthering the development of nuclear power as a safe environmentally acceptable and economic energy source*

*This is achieved by*

- *encouraging harmonisation of national regulatory policies and practices 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*
- *assessing the contribution of nuclear power to the overall energy supply by keeping under review the technical and economic aspects of nuclear power growth and forecasting demand and supply for the different phases of the nuclear fuel cycle*
- *developing exchanges of scientific and technical information particularly through participation in common services*
- *setting up international research and development programmes and joint undertakings*

*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*

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## FOREWORD

In this edition of the Bulletin the reader will notice some changes of presentation aimed at improving the readability of the Bulletin. In particular, a new heading "Current Events" has been added under which information on events likely to be of interest to nuclear law specialists will be provided.

Nuclear law is a branch of law in constant change, as is illustrated by the information on national legislation and regulatory action gathered and reported in the Bulletin thanks to the loyal support of our Correspondents. In this edition, reports are given of new regulations establishing revised technical radiation protection standards (for example in Brazil, Ireland and Mexico) and on nuclear safety (United States). Likewise, the implementation of international conventions has required the passing of new laws, for example on physical protection (France and USSR) and on third party liability (Denmark). Such developments can, in turn, lead to structural changes (Federal Republic of Germany and Uruguay).

The adoption of the Joint Protocol governing the relationship between the Vienna and Paris Conventions on nuclear third party liability is probably the most outstanding recent event in our field. A detailed article has accordingly been devoted to this new international instrument. A second article deals with another topical issue, nuclear waste, by discussing the ethical aspect of problems which nuclear waste matters pose for the legislator. On this same important issue, relevant extracts from a new Finnish Decree concerning the financial aspects of the disposal of nuclear waste are reproduced in the "Texts" chapter.

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## ARTICLES

### A BRIDGE BETWEEN TWO CONVENTIONS ON CIVIL LIABILITY FOR NUCLEAR DAMAGE - THE JOINT PROTOCOL RELATING TO THE APPLICATION OF THE VIENNA CONVENTION AND THE PARIS CONVENTION\*

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1 The adoption of the Joint Protocol and its signature on 21st September 1988\*\*, at the closure of the diplomatic conference jointly convened in Vienna by the IAEA and NEA, was hailed as a landmark in efforts towards the establishment of a comprehensive civil nuclear liability regime. The importance of liability and compensation for transfrontier damage caused by a nuclear incident is indeed one of the lessons learned from the Chernobyl accident. The present article attempts to describe the history of the Joint Protocol during the many years it took to develop this link between the two Conventions, to provide a comment on its objectives and content, and to discuss some important questions related to its application.

#### THE LONG ROAD TO THE BRIDGE

##### Retrospect

2. When the International Conference on Civil Liability for Nuclear Damage met in Vienna from 29th April to 19th May 1963, the Paris Convention and

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\* Responsibility for the ideas expressed and the facts given rests solely with the author.

\*\* The English and French texts of the Joint Protocol are reproduced in Nuclear Law Bulletin No 42 (December 1988). IAEA and the NEA will shortly issue a joint publication containing all authentic texts as well as a short explanatory note. The signatory countries to date are Argentina, Belgium, Cameroon, Chile, Denmark, Egypt, Federal Republic of Germany, Finland, Greece, Italy, Morocco, Netherlands, Norway, Philippines, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom.

the Brussels Supplementary Convention had been signed (on 29th July 1960 and 31st January 1963, respectively) but had not yet come into force. The issue of the relationship between the Paris Convention and the Vienna Convention was obviously raised during this Conference <sup>1/</sup> which agreed to include two Articles in the Vienna Convention dealing with this subject. Article XVI of the Vienna Convention provides that "no person shall be entitled to recover compensation under this Convention to the extent that he has recovered compensation in respect of the same nuclear damage under another international convention on civil liability in the field of nuclear energy". According to Article XVII, the Vienna Convention "shall not, as between the Parties to them, affect the application of any international agreements or international conventions on civil liability in the field of nuclear energy in force, or open for signature, ratification or accession at the date on which this Convention is opened for signature". The only international Conventions to which these provisions apply are the Paris Convention and the Brussels Supplementary Convention which were amended by Additional Protocols signed on 28th January 1964 in order to harmonize their provisions with those of the Vienna Convention. The Preamble of the Additional Protocol to the Paris Convention refers to Article XVII of the Vienna Convention and states the desire of the Signatories "of ensuring that as far as possible there are no conflicts between the two Conventions, thus enabling them to become Parties to both Conventions if they so decide"

3 However, no Contracting Party to the Paris Convention has so far ratified the Vienna Convention, the signatures of Spain (6th September 1963) and the United Kingdom (11th November 1964) were not followed by ratifications. This lack of interest in becoming Party to the Vienna Convention with a worldwide vocation is probably due to the following reasons. The minimum liability amount of 5 million units of account fixed by Article V of the Vienna Convention is considered unacceptably low by many countries. It is true that Article 7 Paris Convention, while fixing a general maximum amount of liability of 15 million Special Drawing Rights (SDRs) of the International Monetary Fund (IMF) which may be exceeded, permits also the establishment of a liability amount of not less than 5 million SDRs. It is to be noted in this respect that the OECD Council recommended on 16th November 1982 that Paris Convention Parties taking advantage of the possibility under Article 7(b)(i) of fixing a lower liability amount than for operators of nuclear installations in general, should make public funds available up to the general liability amount in the event of damage exceeding the lower amount. In particular, the liability amounts established by the Paris Convention must be seen in the light of the Brussels Supplementary Convention which through its system of State intervention actually covers damage of up to 120 million SDRs and will cover 300 million SDRs as soon as the 1982 Protocol has entered into force <sup>2/</sup>. The Vienna Convention has not been followed by any supplementary agreement, although the International Conference on Civil Liability for Nuclear Damage, in its Resolution of 19th May 1963 on the Establishment of a Standing Committee, charged that Committee "to study the desirability and feasibility of setting up an international compensation fund for nuclear damage, and the manner in which such a fund would work to enable operators of the Contracting Parties to meet the liability under Article V of the Convention, including ways of covering nuclear damage exceeding the amount therein provided" <sup>3/</sup>. Another reason, related to the first one, is probably the absence of a provision in the Vienna Convention similar to Article 7(e) of the Paris

Convention which allows Contracting Parties to make the transit of nuclear substances through their territories subject to the condition that the maximum liability of the (sending or receiving) foreign nuclear operator be increased up to the maximum amount applicable to operators within those territories. A proposal to insert such a provision was rejected by the Vienna Nuclear Liability Conference 4/. The slow progress of ratifications of the Vienna Convention (it took fourteen years for its entry into force although only five ratifications were required) did not enhance the interest of the Parties to the Paris Convention which have little, if any, geographical or commercial relationship with the present Parties to the Vienna Convention. Finally, the Parties to the Paris Convention were made aware of the fact that their ratification of the Vienna Convention might lead to a number of conflicts which were evoked during the 1968 IAEA/NEA Monaco Symposium on Third Party Liability and Insurance in the Field of Maritime Carriage of Nuclear Substances 5/.

4 Despite the extensive harmonization of the two Conventions by means of the 1964 Additional Protocol to the Paris Convention, a number of differences remained and further ones were added after the entry into force of the 1982 Protocol amending the Paris Convention 6/. These differences concern the membership (the Vienna Convention with a worldwide vocation, the Paris Convention with a de facto "regional" character, concluded within the framework of the OECD), the fact that only the Paris Convention contains provisions on its territorial scope of application (Article 2) and the transit of nuclear material [Article 7(e) already mentioned above], the liability amounts, the rules on subrogation and conflicts of jurisdiction as well as on the settlement of disputes. In particular, the 1982 Protocol has replaced the unit of account of the European Monetary Agreement based on the gold standard by the Special Drawing Right (SDR) of the IMF, while the unit of account according to Article V 3 of the Vienna Convention is still the gold value of the US dollar on 29th April 1963, which may give rise to different interpretations and does not correspond to the general tendency to replace gold-based units of account by the SDR in international agreements.

5 However, none of these differences touches upon the common principles of both Conventions which are well-known: the operator of a nuclear installation is absolutely and exclusively liable for nuclear damage, his liability is limited in amount and in time; he must cover his liability by insurance or other financial security, the courts of a single Contracting Party are competent for claims against the operator, and the Conventions are applied without any discrimination based upon nationality, domicile or residence. Another common feature of both Conventions is that they are comprehensive in the sense that they apply to nuclear incidents occurring not only in nuclear installations but also during transport of nuclear material sent thereto or therefrom.

#### A blueprint is shelved

6 After the hope of the Parties to the Paris Convention ratifying the Vienna Convention had virtually been abandoned, the problem of the relationship between the two Conventions was taken up again in 1972 by the NEA Group of Governmental Experts on Third Party Liability in the Field of Nuclear

Energy This initiative stemmed from the wish to unify the principles on which civil liability for nuclear damage were based, in the light of the continuing growth of the nuclear industry and international trade in nuclear materials, equipment and installations, and at the same time to both improve protection for victims and serve the interests of operators of nuclear installations, carriers and insurers. At this time the Paris Convention had already entered into force (on 1st April 1968), but neither the Vienna Convention nor the Brussels Supplementary Convention were as yet operative. In collaboration with IAEA Secretariat, a series of possible solutions were examined which were to achieve two interrelated objectives: firstly, the removal of difficulties resulting from the simultaneous application of both Conventions and, secondly, the wider acceptance of the basic system underlying both Conventions. The solutions discussed within the NEA and IAEA can be summarised as follows:

I. A single Convention

- a) termination of the Paris Convention and continuation of the Vienna Convention,
- b) termination of the Vienna Convention and continuation of the Paris Convention,
- c) a new Convention

II Continuation of both Conventions

- a) ratification of the Vienna Convention by the Contracting Parties to the Paris Convention,
- b) extension of the territorial scope of both Conventions,
- c) a "bridge" between the two Conventions in the form of a Joint Protocol or two identical Protocols

During this work all solutions barring the latter were discarded for various legal, practical or political reasons <sup>7/</sup>. The solution of a Joint Protocol open to both the Contracting Parties of the Paris Convention and the Vienna Convention was selected as being the most satisfactory.

7 This Joint Protocol was first considered by a Restricted Working Group of the IAEA Standing Committee on Civil Liability for Nuclear Damage, convened in Vienna in May 1974. It was subsequently studied in June 1974 by the NEA Group of Governmental Experts and again in March 1975 when the Experts concluded that a Joint Protocol was generally the most satisfactory solution from a legal point of view, although certain minor reservations were expressed regarding the transit of nuclear material and the question of the application of the Brussels Supplementary Convention. At the same time, however, the national Representatives had not decided definitely on the advisability of implementing this solution (the Vienna Convention was not yet in force), and agreed to submit the draft Protocol to the IAEA Standing Committee for a formal opinion. However, the latter did not place this item on the Agenda of its following meeting, thus putting a (provisional) end to the exercise. The operative provisions of the 1974 Draft Joint Protocol (hereinafter referred to as the "1974 Draft") read as follows:

## Article I

(a) For purposes of application of the Vienna Convention, the Parties to this Protocol which are Parties to the Paris Convention shall be considered as if they were Parties to the Vienna Convention, with the exception of Articles XVI, XVII, XXI, XXII, XXIII, XXIV, XXV, and XXVI of the latter Convention

(b) For purposes of application of the Paris Convention, the Parties to this Protocol which are Parties to the Vienna Convention shall be considered as if they were Parties to the Paris Convention, with the exception of Articles 6(e), 7(e), 17, 18, 19, 20, 21 and 22 of the latter Convention

## Article II

For the purposes of this Protocol and taking into account the provisions of Article I above, either the Paris Convention or the Vienna Convention shall apply to a nuclear incident, to the exclusion of the other The Convention applicable shall be that to which the Installation State of the operator liable, by virtue of either Convention, is a Party.

## Construction

8 It took more than nine years to revive consideration of this problem In May 1984, the IAEA Standing Committee raised anew the desirability of establishing some formal relationship between the Conventions It was felt that the time had come to reactivate consideration of this matter as further States were considering adhesion to the Vienna Convention (which had come into force on 12th November 1977) and North-South bilateral nuclear co-operation and supply arrangements were increasing The NEA Group of Governmental Experts endorsed the IAEA proposal for a joint study of the relationship between the Paris Convention and the Vienna Convention, and an informal meeting of Experts was therefore convened by both Secretariats in Vienna in September 1986 After having reviewed the problems and solutions already discussed between 1972 and 1975 (see paragraph 6 above), the Experts favoured a Joint Protocol as the most practical and effective solution, but emphasized the need to consider a number of issues related to the effect and content of the Protocol The NEA Group of Governmental Experts equally considered a Joint Protocol as the best solution to the problem of the relationship between the two Conventions, provided that the applicability of the Brussels Supplementary Convention among its Parties were preserved The Group underlined that adhesion to the Vienna Convention by a greater number of States was a prerequisite for the success of the Joint Protocol The IAEA Standing Committee, at its meeting in March 1987, discussed and endorsed the same solution and agreed in principle on a draft Preamble as well as two draft Articles In June 1987, the NEA Group of Governmental Experts reviewed the results of the IAEA Standing Committee's work and discussed various draft Articles elaborated by the NEA Secretariat

9 Upon the Standing Committee's recommendation, the IAEA Board of Governors and the OECD Steering Committee for Nuclear Energy agreed to

establish a Joint IAEA/NEA Working Group to continue work on the drafting of a Joint Protocol Accordingly, the "Joint IAEA/NEA Working Group of Governmental Experts on the Relationship between the Paris and the Vienna Convention" met at the IAEA headquarters in Vienna from 27th to 30th October 1987 Relying on the extensive preparatory work described above, the Experts succeeded in agreeing on all issues in a remarkable spirit of co-operation The text of the "Joint Protocol relating to the application of the Vienna Convention and the Paris Convention" was thus adopted by consensus on 30th October 1987 at the end of that meeting (see Nuclear Law Bulletin No 40)

10 At its session in February 1988, the IAEA Board of Governors endorsed the Joint Protocol and agreed to the convening of a one-day conference to be organised jointly by the IAEA and the OECD/NEA in conjunction with the 32nd regular session of the IAEA General Conference in September 1988 for the purpose of adopting the Joint Protocol and opening it for signature The OECD Steering Committee for Nuclear Energy, at its meeting in April 1988 endorsed the Protocol and recommended the convening of the conference; these decisions were approved by the OECD Council in June 1988 (see Nuclear Law Bulletin No 41) Some concern had been voiced that one day might be too short a duration should issues of substance be raised But this proved not to be the case, due to the solid groundwork laid by the Joint IAEA/NEA Working Group in October 1987, the Diplomatic Conference of 21st September 1988 crowned the work of sixteen years

#### BASIC IDEAS OF THE JOINT PROTOCOL

11. The preparatory work of the Joint Protocol started with a thorough analysis of the relationship between the two Conventions As both Conventions apply to nuclear incidents occurring in nuclear installations and during transport of nuclear material, possible positive or negative conflicts between them are best illustrated by two groups of cases The first one concerns nuclear incidents occurring in land-based nuclear installations situated in the territory of Contracting Parties to either the Paris Convention or the Vienna Convention, the second group deals with transport of nuclear material between operators of nuclear installations situated in those territories, such transport may be direct between neighbouring countries or require the transit through the territory of Contracting Parties to either the Paris Convention or the Vienna Convention Each of these groups and sub-groups has a series of variants depending on where the nuclear incident and the damage occurs, which are set out diagrammatically in Annex I In examining these cases it was assumed that no Contracting State to the Paris Convention has extended the Convention to cover nuclear incidents or damage in non-Contracting States and that the Vienna Convention also excludes nuclear incidents and damage occurring in non-Contracting States 8/ Although this assumption does not always correspond to the actual state of law, particularly in the case of the Paris Convention 9/, it enabled the problem to be presented in a clearer way

12 This analysis revealed that despite their common basic principles there exists no relationship between the Paris Convention and the Vienna Convention Contracting Parties to the Paris Convention are non-Contracting States within

the meaning of the Vienna Convention and vice versa. This situation has the following consequences (neglecting, under the above assumption, the provisions in certain national laws concerning the extension of the territorial scope)

- (a) Neither Convention applies to nuclear damage suffered in the territory of a Contracting Party to the other Convention, this is of particular relevance in cases where the damage originates in land-based installations (Annex I, cases A 1 to 4, column 4)
- (b) Neither Convention applies to nuclear incidents occurring in the territory of a Contracting Party to the other Convention, which is especially relevant in transport cases (Annex I, cases B and C, column 4)
- (c) Both Conventions are applicable to nuclear incidents occurring and nuclear damage suffered on or above the high seas which may result in their simultaneous application (Annex I, cases B 1 and 2, column 4)

13 It followed further from the analysis that the distinction of the Conventions between "Contracting Parties" or "Installation State" [the latter term is used by the Vienna Convention only but is defined with reference to "Contracting Party" in Article I 1(d)] and non-Contracting States is of particular significance with respect to

- (a) their geographical scope [Article 2 Paris Convention],
- (b) the transport of nuclear material [Articles 4(a)(iv) and (b)(iv) Paris Convention, II.1(b)(iv) and (c)(iv) Vienna Convention],
- (c) the right of subrogation [Articles 6(d) and (e) Paris Convention, IX 2 Vienna Convention],
- (d) the free transfer of compensation and funds provided by insurance or other financial security [Articles 12 Paris Convention and XV Vienna Convention];
- (e) the jurisdictional provisions [Articles 13(a) to (c) Paris Convention, XI Vienna Convention],
- (f) the enforcement of judgments [Articles 13(d) Paris Convention, XII Vienna Convention] and jurisdictional immunities [Articles 13(e) Paris Convention, XIV Vienna Convention],
- (g) the principle of non-discrimination [Articles 14 Paris Convention, XIII Vienna Convention].

The first principle underlying the Joint Protocol is therefore to create a link between the Paris Convention and the Vienna Convention by abolishing this distinction between their respective Contracting Parties as regards the operative provisions of either Convention. Consequently, Contracting Parties to the Paris Convention are no longer treated as non-Contracting States within the meaning of the Vienna Convention and vice versa. On the contrary, they are mutually regarded as Contracting Parties whenever the operative provisions of either Convention are applicable, notably those referred to above



14. The second basic principle of the Joint Protocol is the elimination of conflicts between the two Conventions by making either the Paris Convention or the Vienna Convention exclusively applicable to a nuclear incident. The choice of the applicable Convention can be made in the light of the connecting factors established by the first principle.

15. The consequences of this approach are the following:

- (a) The territorial scope of the two Conventions is extended: operators of nuclear installations situated in the territories of Contracting Parties to either Convention are liable for nuclear damage suffered in such territories and on or over the high seas and resulting from nuclear incidents occurring in those territories or on or over the high seas (Annex I, column 6).
- (b) In case of transport of nuclear material, the respective provisions of the Conventions concerning Contracting Parties [Vienna Convention, Article II 1(b)(1) and (11), (c)(1) and (11), Paris Convention, Article 4(a)(1) and (11), (b)(1) and (11)] are applicable. Consequently, the transfer of liability between V- and P-operators is determined by the terms of a contract in writing or, in the absence thereof, by taking charge of the nuclear material (Annex I, cases B, column 6).
- (c) The jurisdictional provisions [Vienna Convention, Article XI; Paris Convention, Article 13] apply as between Contracting Parties.
- (d) The maximum amount of the operator's liability as fixed by his Installation State's legislation pursuant to the Convention to which the latter is a Party, covers nuclear damage suffered in V- as well as in P-States without discrimination.

If, for example, the operator of a nuclear installation in P, which has ratified the Protocol, sends nuclear material to the operator of a nuclear installation in V, which has also ratified the Protocol, and a nuclear incident occurs in V (Annex I, case B 4, column 6), the operator liable will be determined according to the identical provisions applicable to Contracting States, i.e. in accordance with actual or contractual taking over of the material [Articles 4(a)(1) or (ii) Paris Convention, II.1(b)(i) or (ii) Vienna Convention]. The courts in V have jurisdiction under both Conventions [Articles 13(a) Paris Convention, XI 1 Vienna Convention]. The laws of Vienna, the State in which the installation of the operator liable is situated, will determine the amount of liability.

#### ANALYSIS OF THE JOINT PROTOCOL

##### Title

16. As indicated by its title, the Protocol "joins" the two Conventions by means of a single instrument. This solution, already contained in the 1974 draft, was favoured by both the IAEA Standing Committee and the NEA Group of Governmental Experts as it stresses the reciprocity of the mutual undertakings.

accepted by the Parties to either Convention ratifying the Protocol. In addition, this solution had practical advantages: the adoption of the Joint Protocol required only one diplomatic conference, thus avoiding the possible risk of diverging texts between separate Protocols to each Convention, it was also easier to formulate the entry-into-force clause (Article VII 1), since with two Protocols the entry into force of the one would have to be made dependent on the entry into force of the other.

#### Preamble

17. The reference to the Paris Convention includes the Protocol of 16th November 1982 which at the time of the diplomatic conference had not yet entered into force; it did so on 7th October 1988. On the other hand, no mention is made of the Brussels Supplementary Convention which would have been advisable, had the Joint Protocol contained an Article dealing with that Convention. The insertion of such a provision was however discarded for the reasons explained below.

18. The Preamble evokes further the points mentioned above: the similarity in substance of both Conventions, the difficulties resulting from their simultaneous application and the dual purpose of the Joint Protocol.

#### Article I

19. This Article, which did not appear in the 1974 Draft, was inserted by the Joint IAEA/NEA Working Group of Governmental Experts in October 1987 in order to cover future amendments to either Convention and avoiding the need of having to amend the Joint Protocol as a consequence thereof. Each Contracting Party to both the Protocol and the Vienna Convention or the Paris Convention is therefore bound, with respect to the other Parties to the Protocol, to apply either Convention in the same form as it does in relation to the other Parties to its own Convention. Thus, the Parties having ratified the 1982 Protocol amending the Paris Convention will have to apply the amended version, while those Parties which have not yet done so will continue to apply the Paris Convention as amended by the 1964 Additional Protocol only. Similarly, should the Vienna Convention be revised, the revised version will be applied by those Parties for which it is in force.

#### Article II

20. Compared to the 1974 Draft, this Article reflects a fundamental change in the drafting philosophy of the Joint Protocol. While the operative provisions of the former were confined to the minimum (they covered only the substance of the present Articles III and IV) and may be called legalistic and even esoteric, the final version spells out directly the extension of the liability and compensation system of either Convention to the Parties of the other Convention. As pointed out above, the Chernobyl accident has triggered public concern about international civil liability regimes for nuclear damage and has made lawmakers aware of the need not only to enlarge the system but also to state the objectives of such enlargement as clearly as possible.

21 When drafting this basic rule, reflecting the desire expressed in the Preamble of mutually extending the benefits under either Convention to the Parties of the other Convention, the Experts considered two alternatives. Under the first one the rule would provide for the extension of the scope of application of either Convention to cover nuclear damage suffered in the territory of one or more Contracting Parties to the other Convention. According to the second alternative, it would be stipulated that nuclear operators shall be liable for such damage, according to the Convention to which their Installation State is a Party. The first alternative stresses the territorial scope of application of the Conventions while the second one emphasizes the operator's liability. Both draft alternatives contained the proviso that the nuclear incident causing the damage must have occurred in the territory of a Contracting Party to either Convention in order to specify that the Joint Protocol as such does not cover nuclear damage caused in the territories of its Contracting Parties by incidents occurring in non-Contracting States (i.e. in those States which are not Party to either Convention nor to the Protocol).

22 It was eventually decided to adopt the second alternative as it was considered to be more in line with the two Conventions which also place the emphasis on the operator's liability, it was also felt that the wording of the first alternative ("the scope of application of the Vienna Convention/Paris Convention shall be extended to cover nuclear damage suffered in the territory of a Contracting Party to the Paris Convention/Vienna Convention") might be somewhat vague from the legal point of view. The Experts also agreed to leave out any reference to the place of the nuclear incident which caused the nuclear damage, as they judged this to be a matter for national legislation. If the nuclear incident occurs in the territory of a Contracting Party to the Joint Protocol, it goes without saying that Article II is applicable. Should nuclear material be carried to, from or through a non-Contracting State and a nuclear incident in its territory cause damage in the territory of a Contracting Party to either Convention and to the Protocol, the operator's liability for such damage is determined by the legislation of his Installation State. This is made clear by the wording that "the operator shall be liable in accordance with that Convention ..." which includes national legislation implementing that Convention. If for example a Contracting Party to the Paris Convention has followed the recommendation of the Steering Committee of 22nd April 1971 and extended the scope of application of that Convention to damage suffered in a Contracting State to the Paris Convention, even if the nuclear incident causing the damage has occurred in non-Contracting State, the Paris Convention-operator will also be liable in such a case for nuclear damage suffered in the territory of a Contracting Party to the Vienna Convention which is also a Party to the Joint Protocol.

23 Neither the Vienna Convention nor the Paris Convention mention the case of nuclear incidents occurring and nuclear damage suffered on or above the high seas. It was therefore decided not to refer explicitly thereto in Article II of the Joint Protocol. There is, however, general agreement that both Conventions apply to such cases. The Steering Committee for Nuclear Energy adopted a recommendation to that effect on 25th April 1968, and the Standing Committee on Civil Liability for Nuclear Damage took the same view in April 1964.

### Article III

24 This Article implements the second principle referred to in the Preamble by clearly determining the applicable Convention. The 1974 Draft (Article II, second sentence) contained only a very short conflict rule: "The Convention applicable shall be that to which the Installation State of the operator liable, by virtue of either Convention, is a Party." The present wording, as that of Article II, results equally from the wish to indicate clearly the purport of the conflict rule by mentioning the two principal cases involving the nuclear operator's liability. Article III 1 establishes the guiding principle that a simultaneous application of both Conventions should be avoided and that only one Convention should apply to a nuclear incident to the exclusion of the other Convention. This principle is implemented by two conflict rules, the first one dealing with nuclear incidents occurring in a nuclear installation (Article III 2) and the second one concerning nuclear incidents involving nuclear material in the course of carriage (Article III 3).

25 As regards these conflict rules in general, there was unanimous agreement that the applicable Convention should be the one to which the Installation State of the operator liable is a Party. He would thus be liable under the Convention which corresponds to his own national law. In transport cases, if the incident occurs in the territory other than that of the liable operator's Installation State, the Court, having jurisdiction [Article 13(a) Paris Convention, Article XI 1 Vienna Convention] will have to apply a national law different from the *lex fori*, but that is not unusual in conflict of law cases. Moreover, the application of the foreign law will in most cases be limited to the amount of compensation available under the foreign operator's national law, while the nature, form and extent of the compensation as well as the equitable distribution thereof will be governed by the national law of the competent Court (Article 11 Paris Convention, Article VIII Vienna Convention). Applying the Convention to which State whose courts have jurisdiction is a Party could have resulted in the operator being liable under a Convention to which his Installation State is not a Party. This result would have created difficulties. For example, as the provisions of the Paris Convention on the rights of subrogation and recourse are wider than those of the Vienna Convention, Parties to the latter would have had to amend their national laws to provide for the case that an action is brought before a Court of a Party to the Paris Convention against a Vienna Convention-operator under Article 6(d) or (e) of the Paris Convention; such legislation would not be in conformity with the Vienna Convention.

26 The conflict rule in the case of nuclear incidents occurring in nuclear installations (Article III 2) relies on the principle of territoriality: the place of the incident determines the applicable Convention.

27 The conflict rule in transport cases (Article III 3) was perhaps the most disputed one during the negotiations, not so much because of its substance but because of its wording. It was argued that conflict rules are drafted in such a way that the choice of law is made on the basis of facts or status (for example domicile, nationality or, as in Article III 2, the place of the incident) and not by reference to legal provisions. The supporters of this argument presented a number of drafting proposals which tried to combine

the identical transport provisions of both Conventions [Article 4(a) and (b) Paris Convention, Article II 1 Vienna Convention] While these proposals had the advantage of spelling out the rules determining the liable sending or receiving operator and thus the applicable Convention, as well as of avoiding the need to resort to other legal instruments (which might be amended), they had the disadvantage of making the text rather heavy and of carrying the risk of being inconsistent with the transport provisions of either Convention. It was finally agreed to make an exception to the usual practice of drafting choice of law rules This exception was considered to be justified by the fact that the provisions referred to in Article III 3 describe facts, namely the assumption of liability assumed to the express terms of a contract in writing, the taking charge of nuclear material, and the loading on or unloading from a means of transport It is true that the specific reference to the Articles of the Vienna Convention and the Paris Convention has the inconvenience that Article III 3 has to be amended if these provisions are modified or renumbered It is, however, unlikely that the substance of these Articles or their numbering will be changed, a revision of the Paris Convention is not expected for some time to come, and a possible revision of the Vienna Convention will probably not alter the substance or the numbering of Article II 1(b) and (c)

28 The conflict rule in transport cases is based on the fact that the cited provisions of the Vienna Convention and the Paris Convention are identical in substance and are to be applied "in the same manner as between Contracting Parties" to one and the same Convention (see Article IV of the Joint Protocol) This comprehensive rule allows to determine the applicable Convention in all transport cases as shown by the following examples

- (a) As pointed out in paragraph 15 above, these provisions apply whenever nuclear material is carried between operators of nuclear installations situated in the territories of Contracting Parties to the Joint Protocol If a nuclear incident occurs in the course of carriage, the sending P- or V-operator remains liable until the receiving operator has assumed the liability or has taken charge of the nuclear material [Article 4(a)(1) and (11) Paris Convention, Article II.1(b)(i) and (11) Vienna Convention] The liability of the receiving P- or V-operator is determined by the mirror-like provisions of Articles 4(b)(i) and (ii) Paris Convention and Articles II 1(c)(1) and (ii) Vienna Convention
- (b) When nuclear material is sent to or from a person within the territory of a non-Contracting State (NC) the sending or receiving P- or V-operator is liable according to Article 4(a)(1v) or (b)(1v) of the Paris Convention or Article II 1(b)(1v) and (c)(1v) of the Vienna Convention, respectively This is obvious when the non-Contracting State is a Party to neither the Paris Convention nor to the Vienna Convention (and consequently no Party to the Joint Protocol, see Article VI 1) The notion of non-Contracting State within the meaning of the abovementioned provisions comes also into play where nuclear material is carried between nuclear operators situated in the territory of Contracting Parties to the Paris Convention and to the Vienna Convention respectively, and neither (P or V) or only one of these Contracting Parties (PP or VP) has ratified the Joint Protocol Article IV of the latter does not operate as it is only applicable

between its Contracting Parties. The provisions relating to non-Contracting States are therefore applicable in the following cases involving the carriage of nuclear material between V and P, V and PP, VP and P, P and NC, and V and NC

- (c) There is one (rather theoretical) case where the Joint Protocol does not automatically avoid the simultaneous application of both Conventions, as shown by the following example <sup>10/</sup> on the same means of transport (e.g. a ship) nuclear material is carried from or to a P-operator and from or to a V-operator, in the course of carriage a nuclear incident occurs. Which Convention applies is not a problem, where one of the operators has taken charge of the material or has accepted liability in writing. Under the rules described above the Convention will apply whose Contracting Party is the Installation State of the liable operator. Where there is no actual taking in charge or no written acceptance of the liability by one of the operators, the Convention applicable is only clear when the nuclear incident is caused exclusively by one of the nuclear consignments. Where it is caused by both consignments or - what is more likely, it is uncertain which one was responsible - both operators will be liable [Article 5(d) Paris Convention, Article II 3(a) Vienna Convention]. Both Conventions are applicable, and the Protocol does not point to the exclusive application of one Convention. This legal position is however in no way the result of the Protocol and would not be any different without it. The advantage of the Joint Protocol is precisely that it permits agreements between P- and V-operators which excludes the simultaneous application of both Conventions.

29 Article 4(a) and (b) of the Paris Convention and Article II 1 of the Vienna Convention are not entirely identical in substance, as the latter provision (in fine) covers the case of the nuclear incident occurring in a nuclear installation and involving nuclear material stored therein incidentally to the carriage of such material, whereas the corresponding provision of the Paris Convention is to be found in Article 5(b). The latter Article is however applied by virtue of Article IV of the Joint Protocol. The same is true for the case of the operator being substituted by a carrier [Article 5(d) Paris Convention, Article II 2 Vienna Convention] or by a person handling radioactive waste [Article II 2 Vienna Convention].

#### Article IV

30 As pointed out above, the first principle underlying the Joint Protocol is to create a link between the two Conventions by abolishing the distinction between Contracting Parties and non-Contracting States between the Contracting Parties to the Joint Protocol. This mutual recognition as Contracting Parties should however not give the full status of a Contracting Party to the other Convention, a result which could only be achieved by ratification and was discarded as pointed out above. A solution had therefore to be found which conveyed the idea of limited recognition in an appropriate manner. The proper wording of such an Article caused some drafting problems. There was general agreement that the mutual recognition should cover the operative Articles of either Convention but should not extend to their "procedural" provisions such

as those dealing with signatures, ratifications, accessions, amendments [Articles 17 to 22 Paris Convention, Articles XXI to XXVI Vienna Convention].

31 The 1974 Draft (Article 1) tried to express this idea by enumerating the inapplicable Articles of either Convention. This choice was mainly determined by the wish not to mention those Articles of the Conventions which are not directly relevant to the concept of non-Contracting States and to exclude expressly not only the procedural Articles but also those Articles of either Convention which have no counterpart in the other [Article 7(e) and 17 Paris Convention, Article XVI Vienna Convention] or are different in substance [Article 6(e) Paris Convention]. The Joint IAEA/NEA Working Group of Governmental Experts, following proposals by the IAEA Standing Committee and the NEA Group of Governmental Experts, preferred the enumeration of the applicable Articles of either Convention as this positive formula expressed the positive objective of the Joint Protocol better than a negative formula stating exceptions.

32 In this context it is to be noted that, contrary to the 1974 Draft, Articles 6(e) and 7(e) of the Paris Convention are not excluded. As a matter of fact, Article 6(e) is confined to compensation in respect of damage caused by a nuclear incident occurring in the territory of a non-Contracting State, or in respect of damage caused in such territory. This rule remains unaffected if the operator is liable under the Paris Convention but does not apply to incidents occurring and damage suffered in Contracting Parties to the Vienna Convention as they are not considered as non-Contracting States under the terms of Article IV of the Joint Protocol. As regards Article 7(e), it remains applicable among the Contracting Parties to the Paris Convention. As the Joint Protocol establishes the principle of equal treatment and non-discrimination between the Contracting Parties to the Joint Protocol, this Article applies equally between those Parties. Consequently, if nuclear material is carried between operators whose Installation States are Parties to the Joint Protocol (VP and PP) through the territory of a Contracting Party to the Paris Convention (P) (whether Party to the Joint Protocol or not), the latter may require that the liable operator's amount of liability be increased up to the amount applicable to operators in P. If P is also Party to the Joint Protocol and the VP-operator has assumed liability or taken charge of the nuclear material before the transit, this follows from Article IV of the Joint Protocol. Had the PP-operator assumed liability or taken charge of the nuclear material, Article 7(e) of the Paris Convention would be applicable according to Article III 3 and IV of the Joint Protocol. In case P is not Party to the Joint Protocol, VP is a non-Contracting State in relation to P so that the sending or receiving PP-operator is liable until the nuclear material has been unloaded from the means of transport arriving in VP or after it has been loaded on such means destined for PP (cf paragraph 28(b) above), Article 7(e) is thus applicable as between Contracting Parties to the Paris Convention.

33 During the final round of negotiations, the question was raised whether Article 15(b) of the Paris Convention should be included in the list of applicable Articles. It was finally decided not to do so as this Article is not relevant in the context of the Joint Protocol.

34. The wording " . shall be applied . in the same manner as between Contracting Parties to the Vienna Convention/Paris Convention" aims at establishing equal treatment as regards the operative Articles of either Convention without affording the status of a full Contracting Party. This language, proposed by the NEA Group of Governmental Experts, is intended to meet the concern that the wording used in Article I of the 1974 Draft (" the Parties to this Protocol shall be considered as if they were Parties to the Vienna Convention/Paris Convention . ") might be too far-reaching in the light of international treaty practice. The IAEA Standing Committee, at its meeting in March 1987, had proposed the following version "For the purpose of application of the Vienna Convention/Paris Convention, Articles of that Convention shall apply (be made applicable) with respect to the Parties to this Protocol which are Parties to the Paris Convention/Vienna Convention." It was considered that this language did not sufficiently convey the idea of mutual treatment as Contracting Parties with respect to the operative Articles of either Convention

35 The application of the operative provisions "in the same manner as between Parties" leads to equal treatment as regards the amount of compensation available under the legislation of Contracting Parties to either Convention. Consequently, Parties to one Convention are not allowed to limit, as far as the Parties of the other Convention are concerned, the amount of compensation available under their legislation to the amount available under the legislation of the Parties to the other Convention, as long as no public funds are involved [see Articles 7(d) and 15 of the Paris Convention]. Such limitation would also be contrary to the non-discrimination Articles of both Conventions [Article 14(a) Paris Convention, Article XIII Vienna Convention] made applicable by Article IV of the Joint Protocol

36 The Joint Protocol could lead to enlarging the number of victims entitled to compensation, to the detriment of victims suffering damage in the territories of Contracting Parties to either Convention which are not Parties to the Protocol. For example, if a nuclear incident occurring in P, which has not extended the territorial scope of the Paris Convention, causes damage both in P and V, then the entire amount of compensation under the Paris Convention will be available for victims in P. In the event that the Joint Protocol is in force for both P and V, the P-operator's amount of liability serves to compensate damage in P and V which could affect the distribution of available funds. However, the Paris Convention (and also the Vienna Convention, according to some authors) may be extended by Contracting Parties to nuclear damage suffered in non-Contracting States without the other Contracting Parties having to consent thereto, and the Joint Protocol does not change this situation (that such consent is required by the Contracting Parties to the Brussels Supplementary Convention as regards the making available of their public funds is a matter to be settled outside the Protocol and is dealt with below). Moreover, it should be borne in mind that protection of victims in the opposite case (a nuclear incident in V, damage in V and P) is also covered by virtue of the Joint Protocol

#### Final clauses

37. The final clauses contained in Articles V to XI follow the usual practice. It is to be noted that they do not comprise an amendment clause as



it was felt that any required amendments could be dealt with in accordance with the procedures foreseen in Articles 39 and 41 of the Vienna Convention on the Law of Treaties. It was pointed out in this context that Article I of the Joint Protocol covered future amendments to both Conventions so that it would not have to be amended in such a case. A proposal was made to insert a clause, similar to Article 16 Brussels Supplementary Convention, providing for consultations between the Parties to the Joint Protocol "on all questions of common interest raised by the application of this Protocol, in particular in case of an amendment to either the Vienna Convention or the Paris Convention". This provision was also considered to be unnecessary as consultations could always be organised through the normal diplomatic channels.

38 The final clauses do not refer to the Brussels Supplementary Convention, although the Joint Protocol can have certain effects on that Convention (see below). The NEA Group of Governmental Experts considered that any problems related to the application of the Brussels Supplementary Convention should be settled outside the Joint Protocol as the latter deals only with the relationship between the Paris Convention and the Vienna Convention. It would have been inappropriate to insert in the Joint Protocol a provision similar to Article XVII of the Vienna Convention stating that the Protocol shall not affect the application of the Brussels Supplementary Convention as between the Parties thereto, as it is necessary to preserve the application of the Paris Convention as a condition for the application of the Brussels Supplementary Convention. The NEA Group of Governmental Experts proposed therefore the insertion of a declaratory Article having the following wording: "Nothing in this Protocol shall prevent a Party which is Party to the Paris Convention from making provisions preserving the application of the Brussels Supplementary Convention". At the Joint IAEA/NEA meeting of Governmental Experts in October 1987, this proposal was enlarged by a number of delegations to cover other agreements, leading eventually to the following draft Article: "Nothing in this Protocol shall affect the rights and obligations of States Parties under other agreements provided that these rights and obligations are not in conflict with the present Protocol". The Experts finally decided not to adopt such an Article as the subject of conflicting treaty obligations was sufficiently covered by other sources of international law (see for example Article 30, paragraph 5 of the Vienna Convention on the Law of Treaties).

#### Articles V and VI

39 It follows from the nature of the Joint Protocol as a "bridge" between the two Conventions that it may be signed only by States which are at least signatories of either Convention (Article V) and that only Parties to the latter are entitled to become Parties to the Protocol (Article VI 1). In Article VI 2 the Director General of the International Atomic Energy Agency is designated as the depositary of this Protocol, as he has the same function with respect to the Vienna Convention which has a universal character.

#### Article VII

40 The entry-into-force conditions constitute a compromise between the interest of allowing the instrument to become effective within a reasonable

period of time on the one hand, and that of ensuring its practical application by a sufficient number of adhesions, on the other hand. These conditions were discussed to some extent during the preparatory work. Two extreme solutions were rapidly discarded: the first one required the ratification by only one Party to either Convention while the second one made the entry into force of the Joint Protocol contingent on its ratification by all Parties to either Conventions. The "minimum" solution would have been incompatible with the goal of establishing a unified system of civil liability for nuclear damage and would have led to the prolonged existence of a "third class" of countries, namely the Parties to the Joint Protocol. The "maximum" solution carried the risk of considerably delaying the entry into force of the Protocol. To cover future adhesions to the Conventions, it would have been necessary to make them conditional on adhesion to the Joint Protocol, a condition implying an amendment to both Conventions.

41 In search of a compromise two proposals were considered. The first one relied on the 1974 Draft which had proposed that ratification by five Parties to either Convention should bring the Protocol into force which corresponds to the number of ratifications necessary for the entry into force of either Convention [Article 19(b) Paris Convention, Article XXIII Vienna Convention]. The second proposal suggested ratification by two-thirds of the respective Contracting Parties, using Article 20 of the Paris Convention as a guideline which requires this number for the entry into force of amendments and underlining the change of circumstances since 1974: the entry into force of the Vienna Convention having meanwhile ten Parties and the increase from ten to fourteen of the Contracting Parties to the Paris Convention. The first proposal was eventually adopted as the wish to bring the Joint Protocol into force as quickly as possible prevailed over the concern that the number of ratifications required (one half of the Contracting Parties to the Vienna Convention and about one third of those to the Paris Convention) might be too small a foundation for the bridge between the Conventions.

#### Articles VIII and IX

42 The period required for a denunciation of the Joint Protocol to become effective (Article VIII 2) is the same as that fixed by both Conventions [Article 22(a) Paris Convention, Article XXV 1 Vienna Convention] and is intended to allow the other Contracting Parties to take account of that situation sufficiently in advance. For the same reason, Article IX 1 requires a Contracting Party to notify the depositary of the termination of the application to it of either the Vienna Convention or the Paris Convention and to state the effective date of such termination. Article IX 2 stipulates the obvious consequences of such termination.

#### Articles X and XI

43. Article X provides for the usual functions of the depositary of an international agreement. The Secretary-General of the OECD is mentioned in Articles X and XI as he is the depositary of the Paris Convention and therefore interested in all matters related to the Joint Protocol.

## EFFECTS OF THE JOINT PROTOCOL ON THE BRUSSELS SUPPLEMENTARY CONVENTION

### System of the Brussels Supplementary Convention

44. This Convention constitutes a collective implementation of Article 15 Paris Convention which authorises Contracting Parties to take measures providing for an increase in the amount of compensation specified in the Paris Convention and to apply them under conditions derogating from the Paris Convention insofar as such compensation involves public funds and exceeds 5 million SDRs. The system of compensation established by Article 3 of the Brussels Supplementary Convention consists of three tiers (stages). The first tier is provided by financial security held by the operator, usually according to the maximum amount of liability established by national legislation, the second tier covers damage exceeding this amount to an upper limit of 70/175 (1982 Protocol) million SDRs and is provided by the Government of the country where the installation of the responsible operator is located, the third tier covers damage beyond 70/175 to an upper limit of 120/300 million SDRs and is provided jointly by the Contracting Parties to the Convention in accordance with a formula based on the gross national product and the thermal power of the reactors installed in the territory of each Contracting Party. This system is supplementary to that of the Paris Convention as indicated by the title of the Brussels Supplementary Convention and expressly stated in its Article 1 which provides further that it "shall be subject to the provisions of the Paris Convention". The Brussels Supplementary Convention is thus a dependent treaty and can operate only on condition that the "mother treaty", the Paris Convention, is applicable.

45. The application of the Brussels Supplementary Convention depends on several conditions which must be satisfied concurrently (Article 2)

- (a) The operator of a nuclear installation must be liable under the Paris Convention
- (b) This nuclear installation must be
  - (i) situated in the territory of a Contracting Party to the Brussels Supplementary Convention,
  - (ii) used for peaceful purposes;
  - (iii) appear on the list according to Article 13 Brussels Supplementary Convention
- (c) The Courts of a Contracting Party to the Brussels Supplementary Convention must have jurisdiction pursuant to the Paris Convention (Article 13)
- (d) The nuclear incident must have occurred at least partly in the territory of a Contracting Party to the Brussels Supplementary Convention or on or over the high seas
- (e) The nuclear damage must be suffered in the territory of Contracting Parties, or on or above the high seas by their nationals; in the

latter case, nationals of non-Contracting States are entitled to compensation only if the damage was suffered on board a ship or aircraft registered in the territory of a Contracting Party

46 The Joint Protocol does not in any way change the scope of application of the Brussels Supplementary Convention as it deals only with the relationship between the Paris Convention and the Vienna Convention (see also paragraph 38 above) The public funds to be made available by the Contracting Parties to the Brussels Supplementary Convention will be used exclusively for compensation of nuclear damage if the criteria of Article 2 described above are met These criteria exclude nuclear damage suffered in non-Contracting States (e.g Parties to the Vienna Convention whether Parties to the Joint Protocol or not) even if the nuclear incident causing the damage occurred in the territory of a Contracting Party to the Brussels Supplementary Convention (see Annex I, cases A 1, B 6, C 8), they equally exclude nuclear damage suffered in such territories if the nuclear incident occurred entirely in a non-Contracting State (e.g in the course of transport of nuclear material to an operator of a nuclear installation situated in the territory of a Contracting Party to the Brussels Supplementary Convention, see Annex I, cases B 5, B 8, C 11, C 12)

47 The geographical scope of the Brussels Supplementary Convention is thus narrower than that of the Paris Convention which allows Contracting Parties to extend by legislation its scope to nuclear incidents occurring and nuclear damage suffered in non-Contracting States (Article 2) As such an extension may affect the system of joint intervention by public funds established by the Brussels Supplementary Convention, its Article 14(b) stipulates that "any provisions made by Contracting Parties pursuant to Article 2 of the Paris Convention as a result of which the public funds referred to in Article 3(b)(ii) and (iii) are required to be made available may not be invoked against any other Contracting Party unless it has consented thereto" It is to be noted that none of the Contracting Parties to the Brussels Supplementary Convention which have extended the territorial scope of the Paris Convention 11/ has so far asked for such consent.

#### Effects on the system of compensation

48 According to Article II(b) of the Joint Protocol, the operator of a nuclear installation situated in the territory of a Party to the Paris Convention and to the Joint Protocol (PP) shall be liable in accordance with the Paris Convention for nuclear damage suffered in the territory of a Party to both the Vienna Convention and the Joint Protocol (VP) The territorial scope of the Paris Convention is thus extended by means of the Joint Protocol Without the Protocol being in force, damage suffered in a Contracting Party to the Vienna Convention (V) would only be covered if the Installation State Party to the Paris Convention (P) had extended its scope to such damage Thus, if a nuclear incident occurs in PP and causes damage in PP and in VP, the amount of compensation available under the Paris Convention will have to be distributed between victims in PP and in VP It could happen that the insurance or other financial security to cover the PP-operator's liability is insufficient to fully compensate victims in both PP and VP, whereas victims in P would have obtained full compensation had the Joint Protocol not been in

force The drafters of the Joint Protocol were aware of this consequence (see paragraph 36 above) which does not change the actual situation as each Contracting Party to the Paris Convention is free to extend its scope to nuclear damage suffered in non-Contracting States

49 However, the exhaustion of the PP-operator's financial security assumed in the above example has certain consequences for the system of compensation established by the Brussels Supplementary Convention, in other words if PP is also a Contracting Party to that Convention The effects of the Joint Protocol on this system are illustrated by the following examples assuming that the Joint Protocol is not in force (a) or is in force (b) between the countries concerned

- (a) A nuclear incident occurs in a nuclear installation situated in the territory of a Contracting Party to the Brussels Supplementary Convention (B) and causes damage amounting to 200 million SDRs each in B and in a Contracting Party to the Vienna Convention (V) B has limited the operator's liability to 100 million SDRs and has not extended the territorial scope of the Paris Convention The Paris Convention and the Brussels Supplementary Convention are inapplicable to the damage in V, a non-Contracting State
- (b) The situation is different if, in the example under (a), B and V are Parties to the Joint Protocol (BP and VP) The Paris Convention is applicable by virtue of Articles II(b), III 2 and IV 2 of the Joint Protocol to the damage suffered in VP The Brussels Supplementary Convention, however, is applicable only to damage in BP If the damage in BP cannot be fully compensated by the operator's financial security because half of it has to be used for the compensation of victims in VP, the Contracting Parties to the Brussels Supplementary Convention are obliged to intervene collectively with their public funds under the third tier if they have all consented to the extension of the territorial scope of the Paris Convention by virtue of the Joint Protocol In the absence of such consent, they can limit their contribution to the amount which they would have to make available without this extension

50 The compensation scheme in the above examples is illustrated by the following table

Source of funds	Distribution of compensation (million SDRs)					
	Without Joint Protocol		With Joint Protocol			
	B	V	With consent		Without consent	
1	2	3	BP	VP	BP	VP
			4	5	6	7
B(P)-operator's financial security	100	-	50	50	50	50
Public funds of B(P)	75	-	75	-	75	-
Public funds of all Parties to BSC	25	-	75	-	25	-
TOTALS	200	-	200	50	150	50

A comparison between the two examples shows that in case of collective consent (columns 4 and 5), the additional public funds to be made available by all Contracting Parties to the Brussels Supplementary Convention, namely 75 million instead of 25 million SDRs, correspond to the damage suffered in V. In other words, although these funds are used exclusively to compensate damage suffered in the territory of a Contracting Party to the Brussels Supplementary Convention, they serve indirectly to cover damage falling outside the scope of that Convention. In case of collective refusal of such consent (columns 6 and 7) the result would be that the damage suffered in BP amounting to 200 million SDRs would not be fully compensated under the system of the Brussels Supplementary Convention, unless additional public funds were made available by the Installation State BP.

51 The NEA Group of Governmental Experts has examined this problem and agreed that the solidarity among the Contracting Parties to the Brussels Supplementary Convention should be maintained by requesting them to give their collective consent to such extension according to Article 14(b) of the Brussels Supplementary Convention. This consent should be given by all Contracting Parties regardless of whether or not they have ratified the Joint Protocol. To request such consent only from the Parties to the Protocol would create two classes of Contracting Parties to the Brussels Supplementary Convention and run counter to the principle of collective intervention and thus against the interest of the largest possible adherence to the Joint Protocol by those Parties.

52 Article 14(b) of the Brussels Supplementary Convention does not prescribe any particular form which the required consent should take, nor does it specify the point in time at which this consent should be given (for example adoption of the relevant legislation, date of the nuclear incident, date of the request to the other Contracting Parties to make available their public funds). The NEA Group of Governmental Experts have reported this effect of the Joint Protocol on the Brussels Supplementary Convention to the Steering Committee for Nuclear Energy, and recommended that the latter report in turn to the OECD Council which would be invited to "take note of the declared intention of the Governments of all Contracting Parties to the Brussels Supplementary Convention to undertake the necessary steps to give their consent, according to Article 14(b) of that Convention, to the extension of the scope of application of the Paris Convention resulting from the Joint Protocol". Although not expressly stated, there is an understanding that the consent should actually be given not later than the entry into force of the Protocol. In order to ensure that this situation will be maintained in the future, the Group of Governmental Experts recommended further that States which are currently Signatories of the Brussels Supplementary Convention but have not yet ratified it, declare the intention to give this consent when ratifying the Convention. Finally, in the same spirit, the Contracting Parties and Signatories of the Brussels Supplementary Convention should declare that they will require, as a condition for their assent to accessions to the Convention according to its Article 22(b), that any Government requesting accession to the Convention will have given such consent. At its meeting of 28th April 1989, the Steering Committee for Nuclear Energy supported these recommendations. The OECD Council is expected to take note of the declarations in the near future.

Effects of the Joint Protocol on the Brussels Supplementary Convention in certain transport cases

53 In case of nuclear incidents occurring in nuclear installations, the operation of the Brussels Supplementary Convention will not be affected by the Joint Protocol the applicable Convention will always be that to which the State is a Party within whose territory the installation concerned is situated (Article III 2 of the Joint Protocol) If this State is a Party to the Paris Convention and to the Brussels Supplementary Convention, the latter will apply only to damage suffered in the territories of its Contracting Parties, although public funds may have to be made available at an earlier stage as pointed out above

54 In certain cases involving the transport of nuclear material, on the other hand, the operation of the Joint Protocol may result in the inapplicability of the Brussels Supplementary Convention As explained in paragraphs 15 and 28 above, the transport provisions of either Convention relating to Contracting Parties are made applicable by means of Articles III and IV of the Joint Protocol, so that those concerning non-Contracting States are no longer relevant between Parties to the Joint Protocol The consequences of this principle are illustrated by the following examples dealing with situations without the Joint Protocol being in force (a) and with the Protocol being in force (b) respectively

- (a) The operator of a nuclear installation situated in B sends nuclear material to a nuclear operator in V Before the substances are unloaded from the means of transport, a nuclear incident occurs in B and causes damage in B The B-operator is liable for the damage suffered in B according to Article 4(a)(iv) of the Paris Convention and compensation for that damage is to be paid under the Brussels Supplementary Convention as the conditions of its Article 2(a) are met (see Annex I, case B 3, column 5)
- (b) On the other hand, if in the above example the nuclear material is sent from a BP-operator to a VP-operator (both installation States are thus Party to the Protocol which is in force), the unloading from the means of transport is irrelevant Which of the two operators is liable is determined by the express terms of a contract in writing (the normal case) or by the taking charge of the nuclear material If the VP-operator has assumed liability in writing or taken charge of the material before the incident in B occurred, he is liable according to Article II 1(c)(1) or (11) of the Vienna Convention in conjunction with Article III of the Joint Protocol Consequently, the Brussels Supplementary Convention is inapplicable, as there is no operator liable under the Paris Convention, a condition for the application of the Brussels Supplementary Convention according to its Article 2 (see Annex 1, case B 3, column 8)

The Protocol will thus make it possible to render the Brussels Supplementary Convention inapplicable in certain transport cases (including incidents occurring and damage suffered on or above the high seas) when it would be applicable without the Protocol being in force

55. The example given in paragraph 54(b) above may appear rather theoretical if one looks at the present Parties to either Convention and the extent of trade in nuclear material, if any, between them. However, it will gain practical importance, if the Joint Protocol fulfils the hope of attracting more adhesions to the Vienna Convention, particularly in Europe. In this case, the Contracting Parties to the Brussels Supplementary Convention would be ill advised if they did not take measures to preserve its application in the interest of their nationals. The public in those countries will hardly understand that the ratification of the Joint Protocol as a means to enhance the enlargement of the international nuclear liability regime might be counterproductive in depriving potential victims of a nuclear incident of additional compensation.

56. In order to resolve this problem, the Contracting Parties to the Brussels Supplementary Convention could agree to make public funds available in case the Convention were applicable according to its Article 2 but for the fact that an operator of a nuclear installation is liable according to the Vienna Convention in conjunction with Article III of the Joint Protocol and the VP-operator's financial security (and possibly public funds made available by his Installation State) proves to be insufficient to cover the nuclear damage in BP. However, this solution would deviate from the principle that the Brussels Supplementary Convention is supplementary to, or dependent on, the applicability of the Paris Convention and always presupposes a liable P-operator. For this reason alone, this solution may require an amendment to the Brussels Supplementary Convention. In addition, serious problems would arise as regards the system of intervention of public funds established by the Brussels Supplementary Convention. Articles 10 and 11 of the latter Convention set up a well-balanced framework in this respect which works between its Contracting Parties only and would have to be amended if the Installation State of the operator liable is an outsider of that system.

57. The NEA Group of Governmental Experts concentrated therefore on another solution which, without requiring amendments to the Brussels Supplementary Convention, would preserve its application in the example given in paragraph 54(b) above. The consequences for the Brussels Supplementary Convention illustrated by that example could have been avoided, if BP had obliged the sending operator under its jurisdiction to assume liability by contract for any nuclear damage which may be caused by a nuclear incident occurring during carriage of nuclear material between his installation and installations of a VP-operator and for which the Brussels Supplementary Convention would be applicable. This solution would fit into the concept of Article III of the Joint Protocol. By making the BP-operator liable, the Paris Convention and consequently the Brussels Supplementary Convention would be rendered applicable. In practice, this would mean that the BP-operator must assume liability as long as nuclear material sent to or from his installation remains on the territory of Contracting Parties to the Brussels Supplementary Convention (the latter being inapplicable to incidents occurring in non-Contracting States). In addition, the BP-operator must assume liability in case of transport on or over the high seas in order to preserve the applicability of Article 2(a)(1)(2) and (3) of the Brussels Supplementary Convention. The proposal was therefore made that the Contracting Parties to the Brussels Supplementary Convention which ratify the Joint Protocol should take appropriate measures to ensure that the operators of nuclear



installations, or carriers under their jurisdiction, assume liability in all cases involving the transport of nuclear substances between such installations and those of operators situated in the territory of Contracting Parties to the Vienna Convention and to the Joint Protocol, to the extent that nuclear incidents occurring during such transport would, were it not for the operation of the Joint Protocol, lead to the application of the Brussels Supplementary Convention according to its Article 2

58 It is true that imposing the assumption of liability on the P-operator limits the freedom of contractual arrangements between P- and V-operators made possible by Article III 3 and IV of the Joint Protocol. The proposed solution returns in practice to the situation existing before the entry into force of the Joint Protocol where the sending or receiving P-operator is liable according to the provisions on carriage to or from non-Contracting States [see the example in paragraph 54(a) above]. The return to the situation *ex ante* would, however, be limited as the P-operator would not be obliged to assume liability during the entire carriage but only until, or from the moment where, the conditions related to the place of the nuclear incident and the damage suffered specified in Article 2 of the Brussels Supplementary Convention would be met. The infringement on the freedom of contract following from the proposal would not appear to be contrary to the letter and spirit of the Paris Convention as paragraph 32 of the *Expose des Motifs* allows such measures to be taken by the Contracting States 12/

59 As regards the legal form of the solution, the NEA Group of Governmental Experts preferred that consisting of a recommendation of the OECD Council. This proposal was submitted to the Steering Committee for Nuclear Energy which approved it at its meeting of 28th April 1989 and invited the OECD Council to adopt the recommendation, the Council is expected to do so in the near future.

60 As soon as the Joint Protocol has entered into force and its practical application comes into play, it is important that all Contracting Parties to the Brussels Supplementary Convention which are also Parties to the Joint Protocol have taken the proposed measures. If one or more of them were not to follow the recommendation, the uniformity of the application of the Brussels Supplementary Convention and the solidarity between its Contracting Parties might be jeopardised. There might indeed be cases leading to different treatment of victims and creating two classes of Parties to the Brussels Supplementary Convention, as shown by the following example. The Joint Protocol has entered into force. An operator of a nuclear installation situated in a Contracting Party to the Brussels Supplementary Convention and to the Joint Protocol (BP) receives nuclear material from an operator of a nuclear installation situated in a Contracting Party to the Vienna Convention and to the Joint Protocol (VP). The VP-operator has assumed liability during the entire transport. A nuclear incident occurs on the territory of BP and causes damage in BP as well as in another Contracting Party to the Brussels Supplementary Convention which has not ratified the Joint Protocol (B). As regards the relationship between BP and VP, the Vienna Convention is applicable by virtue of Article III 3 of the Joint Protocol. The Brussels Supplementary Convention is inapplicable as there is no operator liable under

the Paris Convention (Article 2(a)(1) Brussels Supplementary Convention) The total amount of compensation is determined by the VP-operator's national legislation If his financial security is exhausted, the legislation of BP could provide for additional compensation, but the other Contracting Parties to the Brussels Supplementary Convention are not obliged to intervene with their public funds according to Article 3(b)(111) Brussels Supplementary Convention The legal situation is different as regards the relationship between BP and B As B has not ratified the Joint Protocol, the assumption of liability by the VP-operator does not come into play, for B the nuclear substances have been sent from a person within the territory of a non-Contracting State so that the BP-operator is liable according to Article 4(b)(iv) of the Paris Convention Consequently, the Brussels Supplementary Convention is applicable so that the victims in B can claim the full benefits of the Brussels Supplementary Convention which might put them in a much better position than the victims in BP This example shows that there are two operators liable for damage resulting from one and the same nuclear incident - the VP-operator for damage in BP and the BP-operator for damage in B This result runs clearly counter to the intention of the Joint Protocol to avoid the simultaneous application of the Vienna Convention and of the Paris Convention and could have been avoided if BP had taken the measures recommended

#### CONCLUSIONS AND OUTLOOK

61 It took twenty-five years from 1963 to 1988, to settle the relationship between the two Conventions, but after consideration of this problem had been resumed in 1986 a result was achieved in the remarkably short period of two years The task was facilitated by the solid groundwork already laid between 1972 and 1975 The Chernobyl accident occurred after the new initiative taken by the IAEA in 1984 and 1985 but demonstrated the importance of the problem and helped to accelerate the work with the continuous support of the governing bodies of the IAEA and OECD/NEA

62 At first sight, the present number of twenty signatures apposed to the Joint Protocol looks impressive; it represents about two-thirds of the 31 States entitled to sign according to Article V A closer look reveals however that the Signatories are unevenly divided between those of the respective Conventions As regards the Paris Convention, the Joint Protocol was signed by thirteen Contracting Parties (this includes all Contracting Parties to the Brussels Supplementary Convention, except France) and one Signatory (Switzerland), i.e. 14 out of 17 or 82 % of possible candidates On the other hand, only six Signatories of the Vienna Convention (60 %) were in a position to sign so far None of the Eastern European countries with centrally planned economy took the opportunity to sign the Vienna Convention on 21st September 1988 which would have qualified them for signature of the Joint Protocol

63 Adhesion to the Vienna Convention by those countries is indeed a *conditio sine qua non* for the success of the Joint Protocol Representatives of the Contracting Parties to the Paris Convention have made it abundantly clear that they would consider ratification of the Joint Protocol only if that condition is met Annex II shows the difference between nuclear power plants

covered by the Paris Convention on the one hand and by the Vienna Convention on the other. The geographically almost closed group of Parties to the Paris Convention/Brussels Supplementary Convention contrasts with the dispersed Parties to the Vienna Convention, most of which are far from each other and use nuclear energy for peaceful purposes to a far lesser extent than the first group of countries. This difference is particularly striking in densely populated Europe where the "white patches on the map" indicate a clear borderline between East and West. This situation, which was presumably one of the reasons that prevented Parties to the Paris Convention from ratifying the Vienna Convention, still exists, with the exception of Yugoslavia which ratified the Vienna Convention in 1977. Paragraph 3 of the Exposé des Motifs to the Paris Convention states: "The effects and repercussions of a nuclear incident will not stop at political or geographical frontiers and it is highly desirable that persons on one side of a frontier should be no less well protected than persons on the other side". The Chernobyl incident has confirmed this forecast along with the urgent need for general acceptance of an international civil liability regime. As a first step in this direction ratification of the Vienna Convention by a large number of countries, in particular in Eastern Europe, is highly desirable. The General Conference of the IAEA expressed the hope on 28th September 1984 that more Member States would consider becoming parties to the Convention 13/. This hope has so far been deceived.

64 There are some other problems to be resolved. The Vienna Convention has to be modernised, above all, the present gold-based unit of account needs to be replaced by the SDR of the IMF in order to bring the Vienna Convention in line with the 1982 Protocol amending the Paris Convention and thus to provide for a common "currency" within the framework of the Joint Protocol. According to Article XXVI of the Vienna Convention, the convocation of a revision conference requires the request of one-third of the Contracting Parties, i.e. actually four. Some Parties have shown an interest in such a conference, but no official steps have been taken so far. Secondly, the Contracting Parties to the Brussels Supplementary Convention will have to take the recommended measures; it is hardly conceivable that their Parliaments will consider ratification of the Joint Protocol if there is a risk that it will render the Brussels Supplementary Convention inapplicable and thus lead to depriving potential victims of its benefits.

65 The adoption of the Joint Protocol is indeed a remarkable achievement, but this bridge between the two Conventions will be opened only after its entry into force, and a lot of water may still have to flow under it before this will happen. The many years it took for the entry into force of the Paris Convention (8 years), the Brussels Supplementary Convention (11 years), the Vienna Convention (14 years) and the 1982 Protocol amending the Paris Convention (6 years) is not particularly encouraging in this respect, let alone the obstacles mentioned above. Some cautious optimism will be in place if the Joint Protocol fulfills the hope of attracting more adhesions to the Vienna Convention. Even after the Protocol has entered into force, the bridge will be rather small as in the beginning it will only link five Contracting Parties to either Convention, and complications could arise through outsiders, i.e. those Contracting Parties to the Paris Convention/Brussels Supplementary Convention or Vienna Convention which have not ratified the Joint Protocol. The bridge will pass its full load test only if it is accepted as a means of creating a unified civil liability regime at least in Europe.

ANNEX I

Cases	Place of Incident*	Place of Damage	Applicable Conventions				
			Without Protocol		With Protocol		
			PC/VC without territorial extension	BSC	PC/VC	BSC applicable ?	
						P-operator liable	V-operator liable
1	2	3	4	5	6	7	8
A Fixed Installations	(1) P	V	none	no	PC	no	-
	(2) V	P	none	no	VC	-	no
	(3) P	P + V	PC to damage in P	to damage in P	PC	to damage in P	-
	(4) V	V + P	VC to damage in V	no	VC	-	no
B Direct transport P → V V → P	(1) high seas	high seas	both	yes	PC or VC	yes	no
	(2) high seas	high seas, P and/or V	PC + VC to damage on high seas PC to damage in P, VC to damage in V	to damage on high seas and in P	PC or VC	to damage on high seas and in P	no
	(3) P	P	PC	yes	PC or VC	yes	no
	(4) V	V	VC	no	PC or VC	no	no
	(5) V	?	none	no	PC or VC	no	no
	(6) P	V	none	no	PC or VC	no	no
	(7) P	P + V	PC to damage in P	to damage in P	PC or VC	to damage in P	no
	(8) V	P + V	VC to damage in V	no	PC or VC	no	no
	(9) P or V	P + V	PC to damage in P VC to damage in V	to damage in P	PC or VC	to damage in P	no
C Transit	(1) V	V	VC	no	VC	-	no
	(2) V - P → V	P	none	no	VC	-	no
	(3) V	V + P	VC to damage in V	no	VC	-	no
	(4) P	?	none	no	VC	-	no
	(5) P	V	none	no	VC	-	no
	(6) P	V + P	none	no	VC	-	no
P - V → P	(7) P	P	PC	yes	PC	yes	-
	(8) P	V	none	no	PC	no	-
	(9) P	P + V	PC to damage in P	to damage in P	PC	to damage in P	-
	(10) V	V	none	no	PC	no	-
	(11) V	P	none	no	PC	no	-
	(12) V	P + V	none	no	PC	no	-

In transport cases it is assumed for the results referred to in column 4 that the nuclear incident occurred before the nuclear substances had been loaded onto or unloaded from the means of transport / see Articles 4(i)(iv) and (b)(iv) IC Article 11 1(i)(iv) and (c)(iv) VC/

ANNEX II

NUCLEAR LIABILITY CONVENTIONS AND NUCLEAR POWER PLANTS

Situation in January 1989

Source Atomwirtschaft March 1989

	<u>Power plants</u>		<u>Capacity</u>	
	Number	%	MWe (gross)	%
A <u>Worldwide</u>				
<u>Total</u>	414	100 00	331 094	100.00
Covered by VC	3	0 72	1 652	0 50
Covered by PC/BSC	139	33 58	118 467	35 78
Not covered by Conventions <u>1/</u>	272	65.70	210 975	63.72
B <u>Europe (incl USSR)</u>				
<u>Total</u>	223	100 00	170 026	100 00
Covered by VC	1	0 45	664	0 39
Covered by PC/BSC	139	62.33	118 467	69 68
Not covered by Conventions <u>2/</u>	83	37 22	50 895	29 93

1 Brazil (1 plant/657 MWe), Canada (18/12381), India (6/1330), Japan (38/29445), Korea, Rep of (8/6758), Pakistan (1/137), South Africa (2/1930), Taiwan (6/5144), USA (109/102298), Europe, see below (83/50895)

2 Bulgaria (5/2760), CSSR (8/3520), German Democratic Republic (5/1830), Hungary (4/1760), Switzerland (5/3034), USSR (56/37991)

## REFERENCES

- 1 Official Records of the Conference (Legal Series No 2), IAEA, Vienna, 1964, pp 381, 383 (Report of the Sub-Committee on Relations with Other International Agreements), 199-208, 332-334 (deliberations of the Committee of the Whole), 147 (vote of the plenary)
- 2 The "Protocol to amend the Convention of 31st January 1963 Supplementary to the Paris Convention of 29th July 1960 on Third Party Liability in the Field of Nuclear Energy, as amended by the Additional Protocol of 28th January 1964" was adopted at Paris on 16th November 1982 and has so far been ratified by eight Contracting Parties to the Brussels Supplementary Convention. It will enter into force on the date when all Contracting Parties, i e eleven at present, have ratified it (Article 21)
- 3 Official Records of the Conference, p 515
- 4 Official Records of the Conference, pp 134, 452 (draft Article IV, paragraph 2)
- 5 U K. Nordenson, Legal conflicts arising from the simultaneous application of the Paris and Vienna Conventions with regard to nuclear incidents in the course of carriage of nuclear substances, in Third Party Liability and Insurance in the Field of Maritime Carriage of Nuclear Substances (Monaco Symposium), OECD Paris, 1969, pp 427 et seq
- 6 The "Protocol to Amend the Convention on Third Party Liability in the Field of Nuclear Energy of 29th July 1960, as amended by the Additional Protocol of 28th January 1964" was signed on 16th November 1982 and entered into force on 7th October 1988, according to Article 20 of the Paris Convention
- 7 These solutions are analysed by O von Busekist Haftungsprobleme im Verhältnis zwischen Vertragsstaaten des Pariser und des Wiener Atomhaftungsübereinkommens, in Pelzer (ed ), Friedliche Kernergienutzung und Staatsgrenzen in Mitteleuropa, Baden-Baden 1987, pp 271 et seq
- 8 The Standing Committee on Civil Liability for Nuclear Damage took the view in April 1964 "having regard inter alia to the transport cases referred to in Article II(1), that in the case of a nuclear incident involving the liability of an operator within the meaning of the Convention, nuclear damage suffered within the territory of Contracting States and on or over the high seas would be nuclear damage covered by the Convention even if the nuclear incident causing such damage occurred on or over the high seas or within the territory of a non-Contracting State On the other hand, nuclear damage suffered within the territory of a non-Contracting State would not be nuclear damage covered by the Convention even if the nuclear incident causing such damage occurred within the territory of a Contracting Party or on or over the high seas" This view is in particular disputed by Nordenson, op cit p 431 who considers that the Vienna Convention "must be deemed to have left the question whether the Convention shall apply to nuclear incidents occurring outside the territory of the Contracting States or to nuclear damage suffered outside

such territory to be governed by national law, i e the law of the Contracting Party whose courts are or would be competent under the Convention and to be determined in accordance with the rules of private international law of the *lex fori*"

- 9 The Steering Committee for Nuclear Energy recommended on 22nd April 1971 that the scope of application of the Paris Convention should be extended to damage suffered in a Contracting State, or on the high seas on board a ship registered in the territory of a Contracting State, even if the nuclear incident causing the damage has occurred in a non-Contracting State. This recommendation, which applies in practice only to damage caused by nuclear incidents in the course of carriage, was followed by Belgium, Denmark and Norway. The latter two countries as well as the Netherlands and Sweden have adopted legislation covering nuclear damage suffered in non-Contracting States provided that the nuclear incident occurred in those countries and liability lies with an operator of a nuclear installation situated therein. The Nordic countries provide further that compensation for such damage may be made subject to reciprocity. The Federal Republic of Germany applies the Paris Convention without territorial restriction and considers the Brussels Supplementary Convention as a self-executing treaty, compensation exceeding 15 million SDRs for damage suffered in non-Contracting Parties to the Paris Convention, and 120 or 300 million SDRs for damage suffered in Contracting Parties to the Brussels Supplementary Convention, according to whether or not they have ratified the 1982 Protocol, is subject to reciprocity. No territorial extension is foreseen in the implementing legislation of France, Greece, Italy, Portugal, Turkey and the United Kingdom.
- 10 J. Deprimoz, *Effets de la Convention de Bruxelles du 17 décembre 1971 sur l'assurance de l'exploitant nucléaire pour les dommages à la cargaison en cours de transport*, Proceedings of the IAEA/NEA Stockholm Symposium on the Maritime Carriage of Nuclear Materials, IAEA, Vienna, 1973, pp 241 et seq, 246 et seq.
- 11 See note 9 for the Contracting Parties to the Paris Convention having made use of this possibility.
- 12 Paragraph 32 of the Exposé des Motifs (which remained unchanged when the 1982 Protocol was adopted) reads as follows:

"For transport of nuclear substances to or from installations situated in its territory, a Contracting Party may require the operators of the installations for whom the substances are carried from abroad to take the substances in charge the moment the substances reach its territory or even earlier. Similarly, in the case of nuclear substances sent by operators of nuclear installations in its territory to a foreign destination, a Contracting Party may require that the nuclear substances shall remain in the charge of such operators until they have left its territory or even longer"
- 13 IAEA document GC(XXVIII)/RES/431, reproduced in Nuclear Law Bulletin No 34, p 51

## **NUCLEAR WASTE MANAGEMENT - ETHICAL CONSIDERATIONS FOR THE LAWMAKER\***

**L. Persson, KASAM**

### **1 INTRODUCTION**

The Swedish Consultative Committee for Nuclear Waste Management (KASAM), in collaboration with the National Board for Spent Nuclear Fuel, arranged a Seminar in 1987: "Ethical Action in the Face of Uncertainty" Some thirty or so scientists were invited to take part, as well as participants in the public dialogue on social questions, especially those with backgrounds in the humanities, theology, the natural sciences and technology Other participants were, besides members of KASAM, representatives for the National Board for Spent Nuclear Fuel, the Swedish Nuclear Power Inspectorate, the National Institute of Radiation Protection and the Nuclear Fuel and Waste Management Company

The Seminar confirmed that as soon as we look at nuclear power from the perspective of its waste products, regardless of how we may continue to use nuclear power, it is both correct and constructive to formulate the fundamental query in terms of "Ethical Action in the Face of Uncertainty" One important reason for this is that we know certain things about the vast chronological dimensions involved in dealing with nuclear waste We know, for example, the duration of the radioactive half-lives of different types of nuclear wastes. Therefore, there is a unique and obvious connection between any measures we may take today and their consequences far in the future, for the present and the future are clearly inseparable Seen from the perspective of its wastes, nuclear power has revealed to us that our responsibility for it projects so far into the future that we, in fact, lack the ability to even imagine that future; and this means that we are forced to accept the factor of uncertainty in our assessment of the long-term consequences of our actions today

The fact that the borders of our responsibility are not limited to today or tomorrow, but stretch far away into an uncertain future, demands of us a new spirit of solidarity: a solidarity across the years between now and the future

However, it is important to point out that the long time-perspective is nevertheless not unique to nuclear energy Indeed, the way in which we approach the question of how to cope with nuclear wastes ought to serve as a model for how we deal with other long-term consequences of "the breakneck progress of our generation, which has not only been bought at the cost of our own welfare, but also poses a threat to the health and environment of thousands of generations to come" Nuclear waste has been the first of these

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\* Dr Persson is the Secretary of the Swedish Consultative Committee for Nuclear Waste Management (KASAM) Responsibility for the ideas expressed and the facts given rests solely with the author



dangers to come under wide scrutiny due to a number of factors, not least among them the fact that the technology of nuclear energy is, in many people's minds, inseparable from the technology of nuclear weaponry

In an ethical assessment of how we shall deal with nuclear wastes, one of the chief questions that arises is how to initiate action while at the same time taking into consideration uncertainties which are unavoidable seen from a long-term perspective

## 2 DIFFERENT TYPES OF UNCERTAINTIES

Since we are dealing with different types of uncertainties on this issue, it follows that we are also dealing with uncertainties in different dimensions of time human, societal, biological and geological For society, a thousand years is a long time But geologically speaking 24 000 years - the half-life of plutonium - is an almost inconsequential time-span, however long it may seem in the biosphere

In a way it is inappropriate to speak of man as being an uncertainty factor In fact, man is an unusually well-functioning being, with a powerful potential for development But at the same time, he has certain built-in limitations, certain imperfections, he is "inherently unfool-proof" Man often attempts to compensate for these innate limitations by technically improving the efficiency of his creations He believes that with the "perfect" technical system he can thereby make the system itself impervious to human failure

Considering what we know about how man works as an individual, we can certainly question if this is a feasible ambition To begin with, when man constructs any system he builds into it the imperfections characteristic of himself Secondly, man has an incapacity for dealing with monotony The boredom of passivity diminishes his capacity for action if the unforeseen occurs and can even tempt him to try, in a foolhardy way, to break the monotony Thirdly the human mind's need of stimulation is fundamental, and causes man to want to exert control over things

If one wishes to lessen the risk of mistakes and faulty action which are inherent in mankind's built-in limitations, one must take individual human qualifications into consideration The question, then, is how this can be done in the context of final storage of nuclear waste Isn't one of the built-in features, even of a repository system, that the system's security can be influenced by the risk for faulty human actions, or by the incomplete knowledge which, precisely because of human limitations, characterises even the most sophisticated expert? Isn't there a danger inherent in the idea that people will be forced to tolerate being cut off from having influence or control over a given situation, as would be the case in the long-term perspective of a repository that is sealed for all time?

Even as it is important to take into consideration the qualifications of the human individual, it is equally important to observe his behaviour in a group Studies show that a group, especially under great pressure from the

outside, will strive after unity, with the result that individual and personal critical judgment can easily be eradicated. The group tends to see itself as invulnerable, which can lead to over-optimism and, thence, to risktaking. Its members easily become inured, awareness is deadened. Anxiety resounds before it has been channelled, and the members become blind to criticism from without. Therefore, it is important that the result of the group's activities be exposed to thorough and meticulous scrutiny by "outsiders", that is, people who have not taken part in the group's work.

As a result of a law that went into effect in 1984 (the Nuclear Activities Act and Ordinance - the provisions relevant to nuclear waste are reproduced in the Annex hereto), Sweden now has a system which, every three years, provides for public scrutiny of the nuclear power industry's research-and-development programmes for final disposal of used nuclear fuel. One reason for setting up this system was to keep the groups responsible for the practical work of choosing a method for final disposal of the spent fuel from becoming tied to a particular method in the early stages of their work. This system for public investigation is obviously meant to counter the effects of the sort of "group-thinking" mentioned above.

Each society has certain tendencies toward reproducing itself, the better to maintain its own stability. These tendencies are especially palpable in three specific societal manifestations: firstly, in the transference of values and methods of instruction from primary groups of different types to the new generation (socialisation). Within these groups a common mentality is fashioned, making it possible for us to predict the behaviour of other people with a reasonable degree of certitude; secondly, in the judicial role of the State, i.e. its laws and the social control they exert. Thirdly, in the social network of economic activity, in which quite different protagonists behave quite similarly because they are steered by parallel interests.

Given these factors as the Seminar formulated them, uncertainty about the development of society can be defined as "the experience of a lack of stability in our vision of the future, because the stabilizing factors are either weak or weakened". The analysis arrived at by the Seminar concerning development of stabilizing factors in the three areas named above, shows conclusively that varying degrees of certainty or uncertainty are built into our present systems of knowledge. The judicial system, for example, would seem to be the most substantial of the stabilizing factors, but this is true, ultimately, only on the condition that it employ legal coercion. On the other hand, according to the analysis, the weakest of the stabilizing factors is the mentality of ordinary people, such as it has become since the foundations of traditional common Christian values began to fall asunder. At the same time it is obvious that precisely this factor, i.e. consistency in the society's fundamental values, which is the most uncertain of all factors in gauging the stability of a society, is the most important of all if we wish to increase certainty and at the same time maintain and strengthen democracy.

The conclusion to be drawn from this is the following one: certainty about society's development can only be increased if fundamental values are kept alive through socialisation, information and influencing of opinion, and then, only if these values are inculcated in all groups and each succeeding

generation Thus, the most important steering mechanisms would not be the courts or the police, but the schools and culture itself This conclusion can also be arrived at if we consider that the fundamental values at issue here are best expressed in terms of a democratic view of society, a humanistic view of mankind, and an enlightened view of the future of the environment

What will the consequences be in relation to our management of nuclear waste if we accept the idea that the most important stabilizing factors in maintaining the security of a democratic state are consensus and the support of fundamental values? In this case, we can only deduce that the process which led the Seminar to certain conclusions played, itself, a central role in the discussions A few of the questions exemplify this how do we arrive at consensus on a solution to the problem? Is working out compromises one of the conditions of consensus? Can the bases for decision-making be broadened by allowing even more groups and individuals to be observers, and by considering their assessment of the risks involved? Is this a way to diminish uncertainty? How does one avoid the danger of information being "filtered", and thereby appearing to acquire a manipulative character? How does one expand the capacity and the power to deal with the information? How does one differentiate between facts and values so that the values of which every decision is ultimately an expression, are clearly delineated and thus can be subject to public debate and choice within the democratic process? How do we arrive at common values when our individual ideals may demand certain specific conclusions at any price?

The third type of uncertainty which the seminar devoted itself to, regards the development of our environment. We know that the very same scientific and technological progress which has had, in many ways, such a positive effect on mankind's living conditions has also subjected the environment to exploitation and has already caused discernible damage. Besides, if effective measures are not taken against these effects, we can predict even more threatening consequences, for example damage to the ozone layer and climatic changes due to the carbon dioxide outlets (the greenhouse effect) Both in the short-term perspective, which involves our lives today, and in the long-term perspective, which involves the "life" of nuclear waste, measures against damage and threats to the environment must take into account not only the present situation but the environment of future generations

Yet and still, the difficulties of predicting the long-term consequences of whatever measures we take today are very great indeed We are obliged to deal with altogether too many uncertain factors, even as far as mankind's future survival is concerned, to be able to make anything like sure predictions However, we know with certainty that our actions today, especially if we do not employ effective antidotes, will lead to deterioration of future life-environments Therefore, our awareness that such a threat is imminent ought to weigh heavier on our scales of ethics than does our uncertainty as to the extent of future damage that might occur

Taken in the larger context which the environment constitutes, the problem of constructing secure repositories for nuclear waste seems, of course, to be a relatively minor question However, taken as a model, it can have decisive importance for the very reason that long-term ethical aspects have been consciously considered in approaching it

As we ponder the fact that our actions with regard to the environment are coloured by uncertainty, the conclusion that seems today to be nearest at hand is that we need time to think out "acceptable" solutions, and thereby attempt to avoid the hasty decisions which could hobble our freedom of action

### 3 SYSTEMS THAT DIMINISH UNCERTAINTY

It has been made plain in this analysis that it is important to identify the particular type of uncertainty one addresses oneself to when assessing the level of certainty that can be achieved, and in the last stages of the assessment process, the different types of uncertainty must be weighed together. To what degree can increased certainty on one level balance out a lack of certainty on other levels?

It is obvious from this that uncertainties of a scientific and technological nature must be dealt with separately from others at some stage of the assessment process.

Two fundamental ideas are of primary importance to any final disposal system. Both of them have to do with the fact that any such system must be constructed with a high tolerance for error, i.e. that it can "pardon mistakes" by virtue of its own built-in security. One of these is the multi-barrier principle, according to which the wastes would be surrounded by several barriers, none of which would be dependent in its function upon the others, in order to guarantee that the system's security would not be contingent on the function of any single barrier. In order to counteract the basic uncertainty which still arises in any analysis of the barriers' function due to the long time-frame necessary to the experiment, which makes controlled testing of the barriers a practical impossibility, a second principle must complement the first: the repository must be constructed as a system in harmony with nature. In other words, materials found in nature would be sought for construction, and the observations which can be gleaned from the natural world could be held up to comparison with various natural systems to arrive at "natural analogies"

### 4 RISK

The word "risk" is used primarily in two closely related contexts. It can mean either the appreciable likelihood of something dangerous occurring, or it can mean, generally speaking, a situation in which it is possible but not certain that something dangerous will occur. Thus the term "risk" implies both the likelihood of danger occurring and the character of that likelihood.

In analyses of risk, one must take into account both the likelihood of danger occurring and the consequences of its occurrence.

Furthermore, in decisions about the execution of different practical phases in the process for handling of spent nuclear fuel, a stand must be taken regarding what constitutes a reasonable level of risk from the point of

view of society and its members, as well as what the economic and other consequences of such decisions will be. These assessments cannot be made on natural scientific grounds alone.

This is the general background to why one of the Seminar's four topics was "risk". The problem was approached in terms of estimated risk, experienced risk and acceptable risk.

Psychological studies were presented for the Seminar demonstrating the ways in which human beings experience risk. One result of these studies is the observation that the risk assessments of informed experts often differed radically from those of laymen. It is interesting to note that there are questions in which the experts assess the risks as being appreciably more innocuous than the general public believes, as well as questions in which laymen feel the risks to be far less than the experts do. An example of this is risks posed by nuclear waste as opposed to the dangers of fire, even though both of these are areas where relatively detailed information has been dispensed to the public. The results of the studies also show that there can be great differences in how risk is perceived among different groups in society depending on age, sex, level of education, etc. Certain studies suggest that men perceive the word "risk" more as the likelihood of some negative occurrence, whereas women to a far greater degree relate the word "risk" to the consequences of a negative occurrence.

In the discussion it was emphasized that the objective of psychological studies surrounding the idea of risk was not that they be used to manipulate people, or to find out how to influence people to accept a particular method of dealing with nuclear waste. Instead, awareness of those factors which influence our conception and assessment of risk should strengthen our ability to defend ourselves against manipulation from various sources.

A special report was devoted to the question of the "philosophy" behind radiation-protective devices and the development of a correlation between this "philosophy" and the train of thought that lies behind construction of protective devices against chemical and other dangerous substances, in other words, general genotoxic protection.

One principle important to this "philosophy of radiation protection" has been summarized in the acronym ALARA (As Low as Reasonably Achievable). This concept propounds that any exposure to radiation must be kept as low as is reasonably possible in keeping with economic and societal considerations.

In the practical application of this philosophy, radiation protection officials proceed from the assumption that there is no threshold below which a dose of radiation has no deleterious effect. This belief is expressed in the hypothesis of the so-called "linear relation", according to which the damage caused by a dose of radiation is proportional to the intensity of the dose. The linear relation is widely discussed among researchers. Some say that the linear relation underestimates the risk of damage caused by a small dose of radiation, others claim that small doses do not cause any damage at all.

However, responsible international agencies and national authorities appraise the linear relation, with its no-threshold axiom, as a sufficiently reliable measure of the radiation risk, and apply it when they draw up regulations for radiation protection

The impression the Seminar had was that the linear relation and the ALARA principle are ethically acceptable guidelines. Similar guidelines should influence our attitude toward exposure to certain dangerous chemicals and other substances as well.

Another general conclusion is that mankind should behave in such a way that the proliferation of radioactive and chemical substances on our planet be minimized. In Sweden, the Stipulation Act of 1977 and the Nuclear Activities Act of 1984 have provoked extensive thinking, administrative work and construction on the subject of nuclear waste (the Stipulation Act which was repealed on 1st February 1984 provided that a safe method should exist for the disposal of spent fuel and high-level waste before putting a reactor into operation). Society must acquire the same urgency in its outlook as far as protection against the long-term effects of dangerous chemicals and other substances is concerned.

It was emphasized in various contexts during the Seminar that in order to minimize as much as possible the risk of long-term negative effects on the environment, we must seek to create systems that are closely allied to nature itself. Professor T. Westermarck of the Royal Institute of Technology, Stockholm formulated the following "commandments" as guidelines

Thou shalt not use substances that cannot be broken down in water,

Thou shalt not employ processes that are unendurable for life as such,

If that isn't feasible, then construct things in the best possible way  
Think of life in a way that keeps it holy;

Do not abuse your knowledge or your techniques to harm life

## 5 THE SHIFTING OF PARADIGMS IN ETHICS

All in all, the deliberations at the Seminar as to what constitutes correct ethical action, considering the long-term consequences of such action and in the face of the uncertainty that characterises it, seem to point to at least a partial shifting of ethical paradigms. Here we can only give slight indications of the direction of the shift

Firstly, it is obvious that the ethical theory which goes under the heading "ethics of consequences" must be supplemented. The traditional criterion for the ethics of consequences, that an action is morally correct if it leads to consequences at least as good as other conceivable alternatives would have produced, is inadequate. Considering the long-term consequences of certain actions, we can never possibly know if those actions were correct. Instead, we are forced to work with calculations of probability, and we must,

at the same time, be open to the possibility that our calculations might be wrong

In this context it was brought out that in spite of the long-term consequences of our actions, we must never cease trying to gauge them, even if only along the lines that calculations of probability can provide. But at the same time, this must be supplemented with methods of making decisions for correct actions. It was especially emphasized here that we must, in our decisions, make it perfectly clear whether those decisions are based on consequences which we can only gauge from a certain degree of probability, i.e. decisions made in the face of uncertainty, or alternatively, if we have a foundation for making a somewhat reasonable assessment of the risks, i.e. decisions made in the face of risks. It was maintained that decisions on the treatment of nuclear waste made in the light of what we know today belong to the category "decisions in the face of uncertainty". On the other hand, there is reason to believe that decisions regarding the functional reliability of nuclear power plants fall into the category "decisions in the face of risks".

The difficulties inherent in foreseeing the long-term consequences of our actions and the uncertainty that follows in their wake, impart a new urgency to the need for ethical principles or basic norms. If we consider that the future consequences of our actions today will influence to a great degree the conditions of all future life, it would seem self-evident for us to seek basic norms in nature's own *modus operandi*, and to ask ourselves whether there is indeed a biological ethic. Attempts were made to define such an ethic, and the seminar was unanimous in its conclusion that seeking these norms presents an important opportunity to arrive at substantial ethical principles for the protection of man and his living environment. In the long run, our responsibility can be summed up thus: "Do not burden nature with more than she can bear!"

At the same time it was plain that what we call natural ethics must be supplemented by the ethical principles of the humanistic world view, which allow not only for assumptions about the worth of mankind, but leave room as well for values fundamental to the lives of all men. The central theme in this context is the possibility for responsibility, observation and control. Here, the Seminar emphasized time and again the question of what processes lead to decisions, and the problem posed by the fact that knowledge and information are unequally spread in our society. From the latter it can be deduced that the majority of people have not been given information in a form that is accessible to them, and thereby lack the tools for observation and democratic control. In many areas it should be possible to state, for example, exactly which facts are not subject to controversy, as opposed to facts on which knowledgeable opinions differ. It was also emphasized that as far as nuclear waste is concerned, the common base for factual knowledge is unnecessarily narrow, and that in this field a broadened dialogue is badly needed between experts, opinion-makers and the general public.

This is all the more important since, secondly, we seem to be facing still another shifting of ethical paradigms. Western ethics have been traditionally dominated by rules for the actions of the individual. Furthermore, these rules have revolved around people's personal interests and needs. However, now that the horizons of responsibility are broadening to

include the consequences of our actions for the condition of all life far into the future, the common responsibility which we bear collectively must occupy stage centre as it never has before. Furthermore, that responsibility must include to a far greater degree everything animate and inanimate in our world, in other words, the environment in its entirety.

The significance of this has yet to develop, but in the light of both KASAM's own work and the work of the Seminar, one conclusion stands out clearly: ethical assessments must be arrived at through collaboration between people with different qualifications, experience, and spheres of responsibility. This collaboration must then function at each phase of the working process that leads to finally taking the necessary stand. The ethical specialist's particular contribution to this collaboration can only be his exposition of problems and conflict patterns in relation to established criteria for dealing with nuclear waste. But assessment of how these criteria are met must be arrived at by the concerned efforts of people representing many walks of life. Their assessment should, too, be openly accounted for as the basis for the stand which our generation must take. This is all the more important as the criteria, such as they have been set forth in previously-made political decisions, are and must be related to society's fundamental values as far as human life, health and safety are concerned, and applicable not only to coming generations but to the total environment as well.

## 6 OUR RESPONSIBILITY AND THE RESPONSIBILITY OF COMING GENERATIONS

One of the central questions posed at the Seminar concerned our generation's responsibility to coming generations. According to the dominating view held thus far, it is our generation's responsibility to find a solution to the problem of nuclear waste that allows it, once it is disposed of, to remain secure without surveillance. KASAM has already questioned this idea in a previous report, mentioning that "we lack the fundamental knowledge to take responsibility for every imaginable consequence to future generations and the basis of their existence", and that, according to a humanistic world view, "it is of great worth that we guarantee coming generations the same right to integrity, ethical freedom and responsibility that we ourselves enjoy".

The Seminar examined this extremely important question in depth and agreed unanimously that we are, in any case, on the way toward a necessary shift in the paradigms of our way of understanding. It remains, now, to plumb the consequences this will have for, among other things, the technical work involved in disposing of nuclear waste.

Basically two lines of reasoning were presented, both of which led, in principle to the same conclusion. For the sake of clarity, we shall outline both.

According to the first and more detailed of the two, it is natural to demand two things from any technical product that is meant to be in use for a longer period: it must be safe in operation and, furthermore, repairable. The same qualities can be demanded of a nuclear waste repository. Safety in



operation means, in this case, that the waste can be disposed of so that as far as we can predict, coming generations will not be obliged to take measures to protect themselves or their environment from it. Reparability means that coming generations can repair any mistakes we may have made in disposing of the waste

Thus far safety in operation has been, almost without exception, the central theme of all discussion, research and political decisions regarding nuclear waste. This is the case, of course, because all debate on nuclear waste has arisen from the perspective of nuclear power. We have discussed the disposal of nuclear waste as a problem which can or cannot be solved as an argument for or against nuclear power. From that perspective, it makes sense to concentrate on the demand for safety in operation; thus, the reparability issue has remained in the background.

If, however, we proceed from the perspective of waste, i.e. putting emphasis on what we shall do with the considerable quantities of waste that must be dealt with regardless of how we proceed with nuclear power, the need for reparability becomes far more urgent. From this perspective we are forced to take into consideration factors like the difficulty of getting different experts to agree completely on whether or not various systems can be considered absolutely safe without the possibility of access to repair them, not to speak of the human errors and incorrect calculations that can also occur in the construction of a final repository.

It was pointed out that from this aspect, it is difficult to see how we can decide on a method of final disposal which is "irreversible", irrevocable, in the sense that the need for reparability is not met to any reasonable extent. Then too, it also becomes clear that the demands for safety in operation and reparability are, in part, in conflict with each other. Safety in operation requires, at least in a certain sense, a sealed repository. Reparability requires, in a somewhat different sense, an accessible repository. The technical question of how both these requirements can be met simultaneously is still insufficiently explored.

In the second line of reasoning, predicted advances in knowledge played an important role. On the one hand, today we can hardly guarantee that knowledge of how to dispose of nuclear waste will exist for all time. From that perspective, repositories should be constructed so that they will need no surveillance once they are sealed. Thus, it is our responsibility to come up with a system that will not need active surveillance in order to ensure that safety can be maintained.

On the other hand it is also conceivable that advances in knowledge will be such that coming generations will have the capacity to deal with nuclear waste in a way that increases safety and/or allows the energy resources latent in the waste to be put to use. The choice of what to do must devolve upon the generation in question and be based upon its own assessment of the advantages and disadvantages to be encountered. Furthermore, this implies that the repository be designed in such a way as to enable future generations to control it.

## 7. A DOUBLE CONCLUSION

These lines of reasoning lead to a double conclusion a repository should be constructed so that it makes controls and corrective measures unnecessary, while at the same time not making controls and corrective measures impossible In other words, our generation should not put the entire responsibility for maintenance of repositories on coming generations, however, neither should we deny coming generations the possibility of taking control.

By means of different formulations and by proceeding from various starting points, a two-edged objective was established vis-a-vis repository facilities. safety in operation combined with reparability, with controls not necessary, but not impossible. Prerequisites for the realisation of this objective are the continued advancement of knowledge and refinement of the qualifications required to deal with nuclear waste

The ethical considerations above should, to my mind, be included in the bases for future laws on radwaste But scientists of different disciplines must first debate these questions before they can form a background to a new legislation

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## ANNEX

### SWEDISH LEGAL TEXTS ON THE MANAGEMENT OF NUCLEAR WASTE

#### Extracts From the 1984 Act on Nuclear Activities

(Swedish Code of Statutes 1984:3)

#### General Obligations of Licence-holders

##### Section 10

The holder of a licence for nuclear activities shall ensure that the necessary measures are taken in order to

- 1 maintain safety, with due consideration to the nature of the activity and the conditions under which it is carried out,
- 2 safely handle and finally dispose of nuclear waste or non-recycled nuclear material arising in the activity; and
3. decommission and dismantle in a safe manner plants in which the activity is no longer to be carried out

##### Section 11

The holder of a licence to possess or operate a nuclear power reactor, shall, in addition to the requirements laid down in Section 10, ensure that such comprehensive research and development work is conducted as is needed in order to meet the requirements set forth in Section 10, subsections 2 and 3

##### Section 12

The holder of a licence to possess or operate a nuclear power reactor shall, in consultation with other reactor owners, prepare or have prepared a programme for the comprehensive research and development work and the other measures stipulated in Section 10, subsections 2 and 3, and in Section 11. The programme shall present a survey of all measures that may be necessary and also specify the measures that are intended to be taken within a period of at least six years. The programme shall, beginning in 1986, be submitted to the Government or the authority designated by the Government every third year for examination and evaluation

##### Section 13

The obligation of a reactor owner to defray certain costs incurred by the State and to remit an annual fee to the State is governed by provisions of the Act (1981:669) on the financing of future expenditure for spent nuclear fuel etc

...

## Extracts from the 1984 Ordinance on Nuclear Activities

(Swedish Code of Statutes 1984 14)

The Government ordains the following

### Section 25

The programme referred to in Section 12 of the Act (1984 3) on Nuclear Activities shall be submitted to the National Board for Spent Nuclear Fuel for scrutiny and evaluation no later than September every third year beginning in 1986.

### Section 26

The National Board for Spent Nuclear Fuel, shall, no later than six months after the deadline stipulated in Section 25, submit to the Government the documents in the matter, together with its own statement of comment on the programmed referred to there

The statement of comment shall include a scrutiny and evaluation of the programme as regards

- 1 planned research and development activities;
- 2 reported research results,
- 3 alternative handling and disposal methods, and
4. the measures intended to be taken

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Note This article is based on Report 29 (Ethical Aspects of Nuclear Waste, April 1988) of the SKN - Statens Kärnbränsle Nämnd (National Board for Spent Nuclear Fuel) available from Dr. Persson at the following address KASAM, Box 60204, S-10401 Stockholm, Sweden

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# CASE LAW AND ADMINISTRATIVE DECISIONS

## CASE LAW

### ● *United States*

#### CLAIMS FOR INJURIES AND DEATHS IN RELATION TO ATMOSPHERIC NUCLEAR TESTS IN NEVADA IN THE 1950s AND 1960s

In actions under the Federal Tort Claims Act nearly 1 200 plaintiffs sued the United States alleging some 500 deaths and injuries as a result of radioactive fallout from open-air atomic bomb tests held in Nevada in the 1950s and 1960s

The Utah District Court selected and tried twenty-four claims in order to find a common framework for the others. The claimants alleged that the Government had failed to fully monitor off-site fallout exposure and to fully provide needed public information on radioactive fallout. The District Court found the Government liable on this basis in nine of these claims. Of the remaining fifteen cases, the Court, in fourteen cases, found that the necessary causal relationship between the injuries and the tests was not established and that therefore the government was not liable and left one claim outstanding (Allen et al v. United States 588 F Supp 247 D Utah 1984)

The Government then appealed to the Court of Appeals arguing, amongst other grounds, that the "discretionary function" exception to the submission by the federal government to suits for damages in tort under the Federal Tort Claims Act precluded government liability (Allen et al v United States 816 F 2d 1417, 10th Cir 1987). Under this exception suit is not allowed for any claim based upon the exercise or performance or the failure to exercise or perform a discretionary function or duty, whether or not the discretion involved is abused.

The Court of Appeals upheld this appeal. It noted the following relevant facts. The Atomic Energy Commission had broad discretionary power under the Atomic Energy Act of 1946 to conduct experiments in the military application of atomic energy. In relation to these experiments the Commission was directed to make arrangements to protect health and to minimise danger.

from explosion and other hazards to life or property "as the Commission may determine" The explosions in question were executed according to detailed plans which the Commission officially reviewed and adopted Separate plans for protecting the public and for providing the public with appropriate information were also adopted by the Commission To execute these plans the Commission delegated some of its authority to a "Test Manager" who had some day-to-day discretion and who, in turn, delegated authority to implement plans to avoid radiation dangers to a Radiological Safety Officer and to implement plans to provide public information on the tests to a Test Information Officer Both of these officers also had some day-to-day discretion in performing their duties It was the alleged failure of these two officers in relation to the monitoring of fallout and the provision of public information on which the District Court had focused in reaching its decision

The Court of Appeals followed the earlier Supreme Court decision in United States v S A Empresa de Viacao Aerea Rio Grandense (Varig Airlines) (467 U S 797 1984) which rejected any distinction between discretion exercised at the highest levels of administration in the initiation of government programmes and discretion involved in carrying out such programmes at lower levels It quoted from that judgment that "[w]here there is room for policy judgment and decision there is discretion "

The Court recalled that the purpose of the "discretionary function" exception was to avoid any judicial intervention that would require courts to second-guess the political, social and economic judgments of an agency It noted that the bomb-testing decisions made by the President, the Commission and all those to whom they were authorised to delegate authority "were among the most significant and controversial choices made" during the 1950s and 1960s and that the government deliberations prior to those decisions expressly balanced public safety against what was felt to be national necessity, in the light of national and international security.

The Court of Appeals concluded that the general statutory provisions left to the Commission the decision as to how public safety was to be protected The operational plans of the Commission constituted the exercise of this policy decision Similarly, considerable scope was left to the Test Manager, the Radiological Safety Officer and the Test Information Officer by these plans to make policy decisions All these decisions involved the exercise of discretion and fell within the "discretionary function" exception. Accordingly, in relation to these exercises of discretion, it was irrelevant whether the Commission or its employees was negligent in failing to adequately protect the public

The carrying out of these policy decisions involving no exercise of discretion, for example, the carrying out of procedures specifically mandated by the Commission's plans, would not attract the "discretionary function" exception The Court, however, found no evidence of any negligence in such carrying out of policy decisions

RECOVERY FOR ECONOMIC LOSSES TO TOURIST INDUSTRY AFTER THREE MILE ISLAND  
ACCIDENT

On 10th May 1988, the Superior Court of Pennsylvania in General Public Utilities, et al v Glass Kitchens of Lancaster, Inc , et al (Nuclear Regulation Reports No 672, 6th June 1988) affirmed a decision of the Court of Common Pleas of Lancaster County, Pennsylvania denying a motion for summary judgment by General Public Utilities and Metropolitan Edison Company, owners of Three Mile Island, Unit 2 and suppliers of that facility, in a lawsuit arising out of the Three Mile Island accident in 1979. In the Court of Common Pleas, (Glass Kitchens of Lancaster, Inc et al v General Public Utilities, et al) corporations associated with the "Pennsylvania Dutch" tourist industry, located in Lancaster County, more than 25 miles from TMI, alleged that the TMI accident caused a diminution in the number of tourists who visited Lancaster County, and, as a result, sought damages for economic loss. They contended that the TMI accident was caused by the defendants' negligent conduct. The defendants moved for summary judgment, contending that there was no genuine issue of fact as to whether any of the plaintiffs suffered actual physical injury or property damage. The plaintiffs contended that such genuine issues of material fact did exist. As the plaintiffs made no claim for physical injuries, the question before the Court of Common Pleas was whether they could recover damages where only economic losses were alleged.

The Court of Common Pleas recognised that the law of Pennsylvania prohibited a claim for economic loss where there is no physical injury, but considered that the Superior Court's opinion in Moore, et al v Pavex et al (356 Pa Super 50, 1986) suggested that a different rule might be applied in the case of nuclear accidents. It agreed with the defendants' interpretation of the Superior Court's statement in that case, namely, that a plaintiff will not be required to remain at his property and be exposed to radiation in order to recover for economic losses; it stated, however, that it was not clear that the plaintiff businesses were in the "fall out zone", the term used in Moore. As summary judgment can only be granted in cases where both the facts and the law are clear, the Court of Common Pleas declined to grant the motion for summary judgment.

The Superior Court recalled the reason why no cause of action exists under general Pennsylvanian tort law for negligence that causes only economic loss. In doing so it quoted from its earlier decisions in Aikens v Baltimore & Ohio R R (344 Pa Super 17, 1985). "allowance of a cause of action for negligent interference with economic advantage would create an undue burden upon industrial freedom of action, and would create a disproportion between the large amount of damages that might be recovered and the extent of the defendant's fault". It stated that this concern was equally applicable to the claims under consideration, even though they arose from a nuclear installation accident. The Court found that, contrary to arguments advanced by the plaintiffs, the statement in the Moore case was consistent with the law of Pennsylvania as expounded in prior cases. The statement recognised that persons or property having come into contact with radiation or fallout will suffer a direct and predictable actual damage, despite the fact that this damage may not be immediately visible to the naked eye. This does not relieve the burden which rested upon the plaintiffs to prove that the TMI nuclear



incident had resulted in actual physical injury or property damage in order for them to state a cause of action for economic loss. It noted that prior cases expressly did not decide whether a different rule of tort law should be applied in the context of a nuclear accident. Since the Court of Common Pleas expressly found that a material issue of fact existed as to whether the TMI nuclear accident caused the plaintiffs to suffer physical injury, the Superior Court found no error in the denial of the motion for summary judgment.

Subsequent to these decisions, the Price-Anderson Amendments Act of 1988 was enacted (see Nuclear Law Bulletin No. 42). Consequently, the defendants moved, pursuant to revised Section 170n (2) of the Atomic Energy Act, to transfer this action to the United States District Court for the Middle District of Pennsylvania. That motion was opposed by the plaintiffs and remains before the District Court.

#### STORAGE OF SPENT FUEL IN HIGH DENSITY RACKS

On 30th November 1988, in Sierra Club v NRC, the U.S. Court of Appeals for the Ninth Circuit reversed, for the second time, a Nuclear Regulatory Commission (NRC) decision permitting the amending of the Diablo Canyon operating licence to allow the storage of spent fuel in high density racks. The Sierra Club submitted a contention at the hearing stating that the proposed high density racks greatly increased the chances of zircaloy fire in the event of a total loss of water in the spent fuel pools. Such a fire, it was alleged, would have significant off-site environmental and safety consequences. This contention had been rejected by both the NRC Licensing Board and the Appeal Board. Generally the basis for the Licensing Board's position was that the Sierra Club had not shown that the total loss of spent fuel pool water at Diablo Canyon was a credible accident scenario. In the Appeal Board's view the contention lacked basis and specificity.

The Court, however, rejected this position. It found the necessary basis and specificity in a Brookhaven National Laboratory report submitted by the Sierra Club. That report stated that the chance of a zircaloy fire was as high as 2.6 in 10 000 reactor years (1 in 100 for the life of the plant) and it recommended that spent fuel not be stored in racks such as those being proposed for Diablo Canyon. The Court further held that efforts to demonstrate that the Brookhaven numbers were inapplicable to Diablo Canyon were improper attempts to resolve the merits of the contention rather than its admissibility. Notwithstanding its ruling on the zircaloy fire contention, the Court refused to prohibit the use of high density racks which had already been installed at Diablo Canyon.

# ADMINISTRATIVE DECISIONS

## ● *United States*

### LICENSING OF SHOREHAM NUCLEAR POWER STATION, UNIT NO 1

On 3rd March 1989, the Nuclear Regulatory Commission dismissed the State of New York, Suffolk County, and the Town of Southhampton as parties from all proceedings pending before the NRC or any of its subordinate adjudicatory boards in the proceeding in the matter of the Long Island Lighting Company's application for a licence to operate Shoreham Nuclear Power Station, Unit 1. The basis for the NRC's decision to dismiss those parties was their willful refusal to produce relevant information and witnesses concerning emergency planning in connection with the operation of the Shoreham reactor. Accordingly, the Commission directed the Director of Nuclear Reactor Regulation to evaluate each contention remaining outstanding as a result of the decision and explain to the Commission in a public meeting whether, and if so, how, each had been resolved. Only after the conclusion of such a briefing, after the necessary findings of had been made, and after an affirmative Commission vote to authorise issuance, would a licence for operation above 5 per cent power be issued for the Shoreham facility.

### LICENSING OF SEABROOK NUCLEAR POWER STATION UNIT NO 1

On 21st December 1988, the Nuclear Regulatory Commission held, in Public Service Company of New Hampshire, Seabrook Station Units 1 and 2, that there was reasonable assurance that funds were available for decommissioning the Seabrook Unit 1. This finding was based upon the applicant's proffered plan to fund, before receipt of a licence for low power testing, a separate and segregated account held by its disbursing agent with the amount of \$72.1 million, provided that no fewer than two of the applicants, whose financial health had not been called into question and who owned substantial shares of Seabrook, jointly and severally guaranteed to make up any deficiency in the fund caused by disbursements for a non-decommissioning expense. The decision stated that a licence may be issued by the Director of the Office of Nuclear Reactor Regulation, after the applicants had satisfied the staff that all decommissioning terms had been fulfilled for operation at power levels not in excess of 5 per cent. Issuance of the low-power licence also requires resolution of a pending motion before the Licensing Board to litigate additional on-site emergency planning issues and any litigation before it on such additional issues. A Commission Atomic Safety and Licensing Board found, with some qualifications, reasonable assurance that adequate protective measures can and will be taken within the New Hampshire portion of Seabrook in the event of a radiological emergency.

# NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

## ● *Brazil*

In 1988, a series of texts were adopted with a view to a large-scale reorganisation of public institutions into national industrial structures in the nuclear field. In addition, it should be noted that the new Brazilian Constitution contains a provision concerning nuclear activities.

### ORGANISATION AND STRUCTURE

#### 1988 Decree setting up a High Council for Nuclear Policy

The High Council for Nuclear Policy was set up by Decree No 96 620 of 31st August 1988; the Decree entered into force on 1st September 1988, the date it was published in the Official Gazette (Diário Oficial).

The task of the Council is to advise the President of the Republic on the national nuclear policy and on government orientations in the nuclear energy field. The Council is made up of all the Ministers of State, the Chairmen of the National Nuclear Energy Commission (CNEN), the Brazilian Nuclear Industries Company (see below), Eletrobras and three private citizens.

#### 1988 Decree relating to the competence of the National Nuclear Energy Commission

Decree No 96 624 was published in the Official Gazette of 1st September 1988. It amends Decree No 75 569 of 7th April 1975 which provided for the competence and tasks of the National Nuclear Energy Commission (CNEN) (see Nuclear Law Bulletin No 26).

The amendments concern, in particular, the bringing of the CNEN's responsibilities into line with the changes in the national nuclear policy.

The CNEN will, inter alia

- collaborate in the formulation of the national nuclear energy policy,

- prepare proposals on the national nuclear energy programme for the High Council for Nuclear Policy;
- make regulations and issue licences in relation to national and foreign trade in nuclear ores, equipment and material,
- make regulations and issue licences in relation to nuclear installations and transport of nuclear material, and
- make regulations in relation to radiation protection in respect of all the above activities

#### Other Decrees on the reorganisation of nuclear activities (1988)

Decree-Law No. 2.464 of 31st August 1988, published in the Official Gazette of 1st September 1988, provides for the transformation of NUCLEBRAS (Brazilian Nuclear Undertakings Ltd) into Industrias Nucleares do Brasil SA - INB (Brazilian Nuclear Industries), a shareholding company, the majority of the shares being held by the National Nuclear Energy Commission (CNEN). The Decree-Law furthermore transfers all the assets of NUCLEBRAS to INB

The Decree-Law also amends Act No. 6189 of 16th December 1974, mainly with regard to the CNEN's competence (see Nuclear Law Bulletin No 23)

This reorganisation is completed by publication of two Decrees Nos 96.621 and 96 622, both of 31st August 1988 and published in the Official Gazette of 1st September 1988

Decree No 96 621 provides for the liquidation of two subsidiary companies of NUCLEBRAS: Enriquecimento Isotopico SA - NUCLEI (isotopic enrichment) and NUCLEBRAS Auxiliar de Mineraçao SA - NUCLAM (ore mining) and appoints liquidators to this effect

Decree No 96 622 authorises Industrias Nucleares do Brasil to set up Uranio do Brasil (Brazil Uranium), a mixed economy company, responsible for prospecting for and mining of nuclear ores, their production and processing

#### 1988 Decree relating to the competence of ministerial authorities in radiological emergency situations

Decree No 96 775 of 27th September 1988 was published in the Official Gazette the following day. It amends Decree No. 85.565 of 18th December 1980 which implemented Decree-Law No 1809 of 7th October 1980 relating to the competence of the Ministries of Naval Affairs, War and Air as well as State governments

The 1988 Decree details the arrangements, duties, and co-operation to be implemented in the event of emergency situations resulting from a nuclear or radiological incident

## RADIATION PROTECTION

### 1988 CNEN Resolution on basic radiation protection standards

Resolution No 12/88 on basic radiation protection standards was approved by CNEN on an experimental basis on 19th July 1988. The CNEN definitely approved the text (Resolution No 32 of 30th December 1988) which was published as CNEN Regulation No. 3.01 in the Official Gazette of 26th January 1989. Resolution No 6/73 on the same subject was thereby repealed (see Nuclear Law Bulletin No 23)

The basic radiation protection standards contained in the Regulation apply to the production, processing, handling, use, transport and disposal of radiation sources.

It should be noted that the underlying philosophy of these radiation protection standards consists of control of individual risks through specified limits, optimisation of protection and justification of exposure to radiation. The requirement is that all radiation exposures be as low as reasonably achievable (known as the ALARA principle)

The salient features of the Regulation are described below

Annual dose-limits are laid down for radiation workers and individual members of the public (5 mSv and 1 mSv respectively). Persons under 18 must not engage in work involving radiation and women of reproductive age must not work in controlled areas, i.e. in areas in which effective annual dose equivalents may be equal to or higher than 3/10 of the annual dose-limit

Also, the use of radioactive materials in household products, cosmetics and toys is prohibited, as is food irradiation. Import of such products and foods is equally prohibited

The Regulation details the obligations of heads of nuclear or radioactive installations. In particular, they must ensure that the necessary radiation protection measures, as laid down by the CNEN, are implemented in their installations and they must appoint a qualified radiation protection supervisor to this effect. They must furthermore submit to the CNEN a radiation protection plan containing, inter alia, the following information:

- type of the installation,
- classification description and purpose of the different areas of the installation,
- description of the radiation protection equipment,
- description of the radiation sources in the installation and their related safety control systems,
- description of the individual monitoring, area monitoring and environmental monitoring systems,

- description of the radioactive waste management system, including waste disposal activities limits, and
- description of emergency plans

Any modifications to the radiation protection plan originally submitted must again be submitted to the CNEN if they are likely to affect the exposure doses to workers or individual members of the public

In addition, radiation workers must undergo medical controls including medical examinations before commencing their work, during such work, and after its termination.

The Regulation is supplemented by tables and annexes referring in particular to the range of radionuclides, permissible limits, etc. They are not described here due to their very technical nature and are similar to those in other national regulations on the same subject.

#### 1988 CNEN Resolution on the setting up of radiation protection services

Resolution No. 10/88 on the setting up of radiation protection services was approved by CNEN on an experimental basis on 19th July 1988. The CNEN definitely approved the text (Resolution No. 32 of 30th December 1988) which was published as CNEN Regulation No. 3.02 in the Official Gazette of 26th January 1989.

The Regulation organises the creation and operation of radiation protection services in nuclear and radioactive installations. It prescribes the structure of the radiation protection service set up within such installations and provides that it must be headed by a Radiation Protection Supervisor, assisted by technical experts whose required qualifications are described. The radiation protection service personnel will be responsible, in particular, for monitoring workers and work areas as well as the environment. They must also monitor radiation sources and equipment and radioactive waste. Records of all the measures taken must be established and kept up to date.

Finally, CNEN inspectors must have free access to all the information they require in the discharge of their duties.

#### 1989 Order on radiation protection and safety requirements in nuclear medicine services

By Order of 19th January 1989 (No. 001/89), the Executive Director of CNEN approved the radiation protection and safety requirements in nuclear medicine services published as Regulation 3.05 in the Official Gazette of 2nd February 1989.

This Regulation applies to radiopharmaceutical applications for radiotherapy and diagnostic purposes in nuclear medicine.

Nuclear medicine services must be licensed by the appropriate authorities. They must conform to the plan laid down in the Regulation as regards the premises, equipment, protective measures and clothing as well as the storage of radiopharmaceuticals and radioactive waste. The equipment and products must be subject to quality controls. Also, the Regulation describes the radiation protection and safety procedures to be applied on the premises and during radiation applications.

Finally, it is provided that detailed records must be kept of the equipment and the radiopharmaceuticals used. The CNEN will carry out inspections to ensure that the provisions in this Regulation are complied with.

## REGIME OF RADIOACTIVE MATERIALS

### Provisions of the 1988 Constitution relating to nuclear materials

The new Brazilian Constitution, which was promulgated on 5th October 1988, provides for State monopoly on prospecting for, mining, enrichment, reprocessing and marketing of nuclear ores. It is also specified that the use of radioisotopes for purposes of research, medicine, agriculture, etc. is authorised under a licensing system.

### 1988 CNEN Resolution on the operation of industrial radiography facilities

By Resolution No. 31 of 30th December 1988, the CNEN approved Regulation No. 6 04 on the operation of industrial radiography facilities (published in the Official Gazette of 26th January 1989). An Order of 9th September 1985 approving the licensing of industrial radiography facilities on an experimental basis was thereby repealed.

The purpose of this Regulation is to establish the necessary conditions for operating industrial radiography facilities, it applies to the use of X-ray apparatus for such radiography and radiation sources.

The use of such equipment and sources is subject to licensing by CNEN. The licence is delivered in three stages: authorisation for construction of the facility, authorisation for acquisition or transfer of the radioactive sources and finally, operating licence. Portable equipment only requires a licence for acquisition or transfer of the sources.

The Regulation also provides for radiation protection and emergency plans in those facilities as well as for premises for safe storage of radioactive sources. Portable equipment must simply be monitored and appropriately marked.

Records must be kept of all operations in facilities and with portable equipment. Also, in the discharge of their duties, CNEN inspectors must be given free access to the facilities.

The Regulation is completed by a series of Annexes containing models of the different licensing forms required

## TRANSPORT OF RADIOACTIVE MATERIALS

### 1988 CNEN Resolution on the transport of radioactive materials

Resolution No. 13/88 on the transport of radioactive materials was approved by CNEN on an experimental basis on 19th July 1988. The CNEN definitely approved the text (Resolution No. 32 of 30th December 1988) which was published as CNEN Regulation No. 5 01 and published in the Official Gazette of 26th January 1989.

The Regulation applies to the transport of radioactive materials on land, waterways, sea and by air as well as to their packaging

This Regulation is technical in nature and lays down specifications for the transport of radioactive materials according to their activity. The design requirements for their safe packaging are also specified as are the documents to be prepared by the consignor for each transport operation

In addition, the Regulation prescribes the radiation protection and safety conditions to be complied with during transport of radioactive materials, also according to their activity

The Annexes to the Regulation describe the packaging tests required (for example: impact, resistance capacity in accident conditions), they also contain label models and tables of activities for radionuclides

## ● **Denmark**

### THIRD PARTY LIABILITY

#### 1988 Act to amend the 1974 Act on Compensation for Nuclear Damage

Act No. 732 of 7th December 1988 (published in Lovtidende for Kongeriget Danmark, Part A, 13th December 1988) amends several provisions of Act No. 332 of 19th June 1974 on Compensation for Nuclear Damage (see Nuclear Law Bulletin No. 15 for text of that Act).

The amendments enable Denmark to ratify the 1982 Protocols to amend the Paris Convention and the Brussels Supplementary Convention respectively (see Nuclear Law Bulletin Nos. 30 and 37); they also enable it to ratify the



1988 Joint Protocol relating to the Application of the Vienna Convention and the Paris Convention (see Nuclear Law Bulletin No 42 for text of the Protocol).

The Act raises the operator's amount of liability from 75 million DKr to 60 million SDRs. Also, in accordance with the 1982 Protocol to amend the Brussels Supplementary Convention the maximum coverage involving State funds is raised from 120 million units of account (obsolete unit) to 300 million SDRs.

The Act enters into force on 1st July 1989, with the exception of the provision involving State funds which will become effective following the entry into force of the 1982 Protocol to amend the Brussels Supplementary Convention.

## ● *Finland*

### NUCLEAR LEGISLATION

#### 1988 Nuclear Energy Decree

The above Decree No. 161/1988 was adopted on 12th February 1988 and entered into force on 1st March 1988. It was made in accordance with Section 82 of the 1987 Nuclear Energy Act (see Nuclear Law Bulletin No. 41 and the text of the Act in the Supplement thereto).

The Decree aims, in particular, to define the scope of application of the Nuclear Energy Act. It provides for exemptions from the Act's provisions when the nature of the activities concerned, the degree of radioactivity of the substances involved or their quantities are such that they represent no significant hazard from the viewpoint of nuclear safety or security in general.

The Decree also deals with the licensing procedure for nuclear installations and competence in this field. The appropriate authorities are the Ministry of Trade and Industry, the Finnish Centre for Radiation and Nuclear Safety and the Council of State respectively. The licensing provisions of the Decree also relate to transport and mining activities.

The provisions dealing with nuclear waste management are very detailed. In view of their particular interest, especially as regards the financial aspects of the mechanisms set up by the Finnish authorities, relevant extracts from the Decree are reproduced in the Texts Chapter of this issue of the Bulletin.

## ● France

### ORGANISATION AND STRUCTURE

#### Decree setting up a Council on Technological Risk Prevention (1989)

Decree No 89-85 of 8th February 1989 (published in the Official Gazette of 10th February 1989) sets up a Council for Technological Risk Prevention under the Prime Minister. The Council contributes to the assessment of collective risks arising from industrial activities, in particular nuclear activities, through its opinions, recommendations, studies, and proposes the relevant preventive actions. It draws the authorities' attention on sensitive points requiring increased vigilance and helps to overcome such risks. The Government may ask the Council to study any question on which it wishes to obtain its opinion.

The Council is made up of twelve members appointed for six years by a decree of the President of the Republic and selected in view of their experience and competence.

### REGIME OF RADIOACTIVE MATERIALS (PHYSICAL PROTECTION)

#### Order on protection and control of nuclear materials carried by sea (1988)

This Order of 17th November 1988 was published in the Official Gazette of 27th January 1989. The Order provides a definition of the terms "approved carrier" and "maritime carrier". The approved carrier means the French or foreign carriers holding a licence within the meaning of the 1980 Act on Protection and Control of Nuclear Materials (see Nuclear Law Bulletin No 26). The maritime carrier means any person - an individual or a legal entity - operating a ship. The Order specifies that the classification of nuclear materials takes into account the overall cargo of the ship and that such materials may be controlled during transit through installations under French jurisdiction.

The approved carrier must communicate certain operational information to the Institute for Protection and Nuclear Safety, the Civilian Protection Directorate of the Ministry of the Interior and to the consigner. He must inform the French harbour authorities of the arrival of nuclear materials and must also be represented during transshipment operations. Where imports are concerned, he must check the integrity of the packages when they are taken over. Where exports are concerned, he must ensure that the nuclear materials have been loaded in safe conditions.

Transport of Categories I and II nuclear materials, except for irradiated fuels, is subject to the prior agreement of the Minister for

Industry, after consideration of a transport plan giving mandatory information on the transport itinerary, the safety of the nuclear materials on board and the ship's means of communication. As regards Category I nuclear materials, the transport plan is more detailed. The transport of Category III nuclear materials is subject to less stringent protection rules.

Nuclear materials in Categories I and II must be continuously monitored during transport.

The maritime carrier must immediately inform the approved carrier in case of any incident. The information received is transmitted to the Institute for Protection and Nuclear Safety and the Civilian Protection Directorate. The Minister for Industry decides whether special protection measures are required.

It is recalled that several orders have been made on physical protection of nuclear materials during transport, in particular by air or by rail (see Nuclear Law Bulletin Nos 29, 38 and 40).

### THIRD PARTY LIABILITY

#### 1988 Act amending the 1965 Act on the third party liability of operators of nuclear ships

Act No 65-956 of 12th November 1965 on the third party liability of operators of nuclear ships amended by Act No 68-1045 of 29th November 1968, was again amended by Act No 88-1093 of 1st December 1988, published in the Official Gazette of 3rd December 1988 (the text of the Act, as amended in 1968 is reproduced in Nuclear Law Bulletin No 3).

The purpose of this amendment is to specify the liability regime of operators of such ships belonging to the State. Henceforth in case of nuclear damage caused outside the national territory the amount of their liability will be determined by the law of the State on whose territory or on whose territorial waters the damage has occurred. If the law of that State fixes no limit, the operator's liability will be unlimited.

### FOOD IRRADIATION

#### Order on the treatment by ionizing radiation of rice-flours and products obtained by their turbo-separation (1988)

This Order of 4th November 1988 was published in the Official Gazette of 13th November 1988. It specifies the conditions for authorising with a view to selling or putting on sale rice-flours and products obtained by their turbo-separation whose microbic decontamination has been obtained through exposure to cobalt 60 or caesium 137 gamma radiation or to electron beams with an energy below or equal to 10 million electron-volts (10 MeV).

The dose absorbed by such flours and products during treatment must not exceed 5 kiloGrays (kGy) and must secure their microbic decontamination. Also, the packaging and labelling must be in conformity with the regulations in force in that field. Establishments in charge of irradiation must keep records of the doses delivered to the products, the quantities despatched, the date of despatch and the consignees. The Area Directorate for Fraud Repression must be informed at least one day in advance of the date of the treatment and the quantities treated to enable controls to be performed in accordance with the Decree of 8th May 1970 on repression of fraudulent practices in the trade of irradiated products (see Nuclear Law Bulletin No 6)

Such imported flours and products must be accompanied by a certificate testifying that they have been treated in accordance with the conditions specified in this Order.

#### Order on the treatment of strawberries by ionizing radiation (1988)

This Order of 29th December 1988 was published in the Official Gazette of 6th January 1989. It specifies the conditions for authorising with a view to selling or putting on sale strawberries whose preservation has been obtained through exposure to cobalt 60 or caesium 137 radiation or to electron beams with an energy below or equal to 10 million electron-volts (10 MeV).

The dose absorbed by the strawberries must not exceed 3 kGy and they must be packaged and labelled according to the intensity and the form of irradiation delivered. Establishments in charge of irradiation must keep records of the doses delivered and the quantities of strawberries despatched, in effect, the same procedures must be followed as those described in the above Order concerning rice flours.

Imported strawberries must be accompanied by a certificate testifying that they have been treated in accordance with the conditions specified in this Order.

## ● *Federal Republic of Germany*

### ORGANISATION AND STRUCTURE

#### Bill on the establishment of a Federal Office for Radiation Protection

The Federal Government has put before Parliament a Bill to establish a Federal Office for Radiation Protection (Bundestags-Drucksache 11/4086 of 24th February 1989).

The Bill aims at concentrating the existing federal powers in one federal authority. The latter's scope will include, in particular, the fields of radiation protection, nuclear safety and radioactive waste management, special emphasis is placed on the construction and operation of a federal final repository for radioactive waste. The Bill does not affect the distribution of powers between the Federal State and the Lander.

According to Section 1(1) of the Bill, the new body "Bundesamt für Strahlenschutz" will be established as an independent federal authority ("Bundesoberbehörde") within the portfolio of the Federal Minister of the Environment, Nature Conservation and Reactor Safety. The headquarters of the Federal Office for Radiation Protection will be at Salzgitter, a town situated in Lower Saxony near Braunschweig.

The tasks of the Federal Office are listed in Section 1(2) of the Bill. They cover radiation protection, nuclear safety and radioactive waste management as enumerated above. This competence has its legal grounds in the Atomic Energy Act, the Preventive Radiation Protection Act 1986 (see Nuclear Law Bulletin Nos. 36 and 39), in other Federal Acts and in relevant statutory instruments. In addition to this administrative competence, the Federal Office will assist the Federal Minister of the Environment in performing his legal duties in the said fields by giving expert advice. It is authorised to undertake research work in those fields. The competent Minister and, with his consent, other Federal Ministers may extend the tasks of the Federal Office.

In order to provide the Federal Office with the necessary manpower and equipment it is planned to transfer such resources from existing institutes and organisations to the Federal Office. Accordingly, the following will be transferred: The "Final disposal of radioactive waste" Division of the Physikalisch-Technische Bundesanstalt (Federal Office for Physics and Technology) at Braunschweig; the "Institut für Strahlenhygiene des Bundesgesundheitsamts" at Neuherberg/Munich (Institute for Radiation Hygiene of the Federal Health Office); the "Institut für Atmosphärische Radioaktivität beim Bundesamt für Zivilschutz" at Freiburg (Institute for Radioactivity of the Atmosphere at the Federal Office for Civil Protection); and certain departments of the "Gesellschaft für Reaktorsicherheit (GRS) mbH" in Cologne/Munich (Company for Reactor Safety, Inc.). These administrative changes are, however, not included in the Bill, but will be implemented by administrative decisions.

The Bill (Sections 2 and 3) provides for amendments of the Atomic Energy Act, the Preventive Radiation Protection Act 1986, the Dangerous Goods Transportation Act 1975, and the Federal Civil Servants' Salaries Act 1986. Some amendments are merely consequential to the establishment of the Federal Office for Radiation Protection in that they affect competences or civil service regulations. Some, however, provide for changes of substance in nuclear energy law.

Thus, a proposed new paragraph 3 in Section 6 of the Atomic Energy Act provides that a licence for the private storage of irradiated nuclear fuels or of solidified or liquid highly radioactive fission-product solutions, which originate from the reprocessing of irradiated fuels, needs a prior public hearing ("Anhörungsverfahren"). The relevant provisions of the 1977 Ordinance concerning the procedure for the licensing of nuclear installations (see Nuclear Law Bulletin No. 30) are applicable to the procedure for this hearing.

Also, Section 12 paragraph 1 of the Atomic Energy Act will be amended by two sub-paragraphs. A new sub-paragraph 4a empowers the Federal Government to establish by ordinance a Federal Register of Occupational Exposures, the so-called "Personendosisregister des Bundes". An amendment of sub-paragraph 10 of that Section clarifies the powers of the Federal Government to regulate by ordinance the physical protection of nuclear activities.

The entry into force of the proposed Act is scheduled for 1st July 1989, provided it is adopted by Parliament by that date. In order to expedite the establishment of the new Federal Office, the Minister of the Environment, Nature Conservation and Reactor Safety established by Decree of 15th March 1989 (Bundesanzeiger of 21st March 1989 No. 56 p. 1505) as a preliminary Federal Agency the "Bundesstelle für Strahlenschutz" which is competent for the necessary administrative preparatory measures. Given its transitional character, that Agency has no legal personality.

## ● Ireland

### RADIATION PROTECTION

#### European Communities (Medical Ionizing Radiation) Regulations, 1988

The above Regulations (S.I. No. 189 of 1988) were made by the Minister for Health on 2nd August 1988.

They provide that all those engaged in the use of ionizing radiation for medical (including dental) purposes must be competent in radiation protection and have appropriate training. They also specify that the exposure of a patient to ionizing radiation must be medically justified and the dose delivered must be as low as is reasonably achievable.

The Regulations implement the provisions of the Directive of the Council of the European Communities No. 84/466 Euratom of 3rd September 1984 laying down basic measures for the radiation protection of persons undergoing medical examination or treatment (see Nuclear Law Bulletin No. 34).

#### Safety, Health and Welfare at Work Bill, 1988

The above Bill, made by the Minister for Labour, covers all aspects of health and safety at work, including nuclear activities. It is at present being considered by the Houses of Parliament (Oireachtas).

The Bill is based on the recommendations of a Commission of Inquiry on Safety, Health and Welfare at Work, which conducted a comprehensive review of the system of safety and health in Ireland and takes into account the views of the Government, employers and workers.

It sets out broad general responsibilities and duties for all employers and workers and extends protection as regards safety and health to all persons engaged in agriculture, forestry, transport, shops, hospitals, laboratories and other areas not covered by the law at present. Employers will be required to identify and assess risks in the work-place and to draw up a safety policy statement.

The Bill provides for the establishment of a National Authority for Occupational Safety and Health which will be responsible for the general administration and enforcement of the new system and for the provision of an expert centre of information and advice for employers and workers in meeting the requirements of the new obligations. It will have a duty to keep under review all of the statutory provisions relating to health and safety at work and it may make such proposals as it considers appropriate in relation to them. In developing its proposals the Authority will be required to consult relevant interests. One of these statutory provisions is the Nuclear Energy (An Bord Fuinnimh Nuicléigh) Act, 1971 under which the importation, custody, use etc. of radioactive substances and irradiating apparatus is controlled by the Nuclear Energy Board (the text of the Act is reproduced in Nuclear Law Bulletin No. 8).

## ● Italy

### NUCLEAR LEGISLATION

#### 1989 Act on Italy's participation in the European Communities' regulatory process and on procedures for implementing the relevant obligations

Act No. 86 of 9th March 1989 was published in the Official Gazette of 10th March 1989. It provides for a general mechanism to allow the regular adoption in national legislation of regulations made at Community level.

The Council of the European Communities issues directives to Member States for harmonizing their legislative and administrative provisions in the different fields of common interest including the nuclear field and, in particular, radiation protection. These texts are binding, and the States concerned must take the necessary steps to adopt them at domestic level within a given time-limit. This Act enables Italy to fulfil its Community obligations by allowing it to adopt such provisions in its own legislation by a simplified, almost "automatic", procedure.

The Act provides that by 31st January of each year, the Minister responsible for co-ordinating Community policy verifies, together with the administrations concerned, the conformity of national regulations with Community regulations. Together with the Minister for Foreign Affairs and other interested Ministers, he presents to the Council of Ministers a Bill

concerning "fulfilment of Italy's obligations as a Community Member State"  
The Bill which, in effect, refers to Community law is submitted to Parliament  
for decision within ninety days

National regulatory provisions are aligned with Community texts either  
by amending or repealing provisions in force which do not tally with Italy's  
obligations in the framework of Community law or by adopting the provisions  
required to give effect to texts enacted by the Council or the Commission of  
the European Communities.

## ● *Japan*

### REGIME OF RADIOACTIVE MATERIALS (PHYSICAL PROTECTION)

#### 1988 Law amending the Law for the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors

To enable Japan to ratify the Convention on the Physical Protection of  
Nuclear Material, this Law partly amended the Law for the Regulation of  
Nuclear Source Material, Nuclear Fuel Material and Reactors (Regulation Law -  
Law No. 166 of 10th June 1957) and was published in the Official Gazette of  
27th May 1988 (For previous revisions of the Regulation Law see in  
particular Nuclear Law Bulletin No. 38 )

The amendments, which take into account physical protection  
requirements, are described below.

The Law now defines "specified nuclear fuel materials" as plutonium,  
and uranium with the ratio of uranium 235 and 233 to uranium 238 exceeding the  
natural mixture ratio.

It is also provided that persons engaged in nuclear activities  
(refining, fabricating, reactor operation, reprocessing, waste management or  
users of nuclear materials - so-called refiners) must lay down rules for the  
physical protection of specified nuclear fuel materials in their  
establishments and designate the areas where they may be handled, kept and  
locked up for their protection, in accordance with an order by the competent  
Minister. It should be noted that competence is vested in different Ministers  
according to the activity involved. Reactor development, refining,  
reprocessing, waste management, etc are under the direct responsibility of  
the Prime Minister, while the Minister for International Trade and Industry is  
competent for nuclear electricity generation for commercial purposes, and the  
Minister for Transport is responsible for activities involving nuclear ship  
propulsion. Refiners must apply for approval by the Minister concerned prior  
to handling such materials and changing the rules. He may in turn order them  
to modify those rules whenever necessary



Refiners must appoint a supervisor for physical protection from among qualified persons in accordance with the clarifications laid down in an order by the competent Minister

In addition, refiners and their contractors must ensure the necessary physical protection of nuclear materials in transfers (excluding transportation by sea or air) outside the premises. Refiners must identify the persons responsible for the transfer of nuclear materials from their establishments to relevant facilities or from any establishments abroad to their establishments, and make an arrangement between the shipper, receiver and the person responsible as regards when and where responsibility for the transfer is to be transferred from one person to another. Refiners must apply to the Prime Minister for approval of the arrangement prior to transportation

Finally, the amendments also provide for sanctions in case of unauthorised use of specified nuclear fuel materials as follows

- endangering human lives or property by causing a fission chain reaction or radiation is punishable by a term of imprisonment of not more than ten years,
- threatening to harm human lives or property by using such materials or threatening to steal them is punishable by a term of imprisonment of not more than three years

The Act entered into force on 26th May 1989.

### THIRD PARTY LIABILITY

#### 1989 Law amending the Law on Compensation for Nuclear Damage

An advisory committee was set up by the Atomic Energy Commission (AEC) to consider the compensation system for nuclear damage and on 6th December 1988, the AEC approved the advisory committee's proposed revisions. Following this approval, the Government put a bill before the Diet amending the Law on Compensation for Nuclear Damage (Compensation Law - Law No 147 of 17th June 1961). Following its adoption into law by the Diet, it was published in the Official Gazette of 31st March 1989. The Compensation Law has already been amended on several occasions, the last amendment being effected by Law No 73 of 1986 (see Nuclear Law Bulletin No 38)

The term of validity of "the government indemnity agreement" and "state aid", which are major provisions of the Compensation Law, are due to expire on 31st December 1989 and further extension of these provisions was examined. At present it is impossible for private liability insurance to cover nuclear damage from earthquakes or volcanic eruptions, these are covered by government indemnity agreements. This is why State aid is so significant for emergency response purposes. According to the amendment, the provisions for the government indemnity agreements and state aid have been extended for a further period of ten years

The amount of financial security for compensation for nuclear damage has also been revised. The present financial security consists of a contract of liability insurance for nuclear damage and a government indemnity agreement for each operation. Financial security for such compensation has been determined by reference to foreign standards and with due consideration for insurance capacity. It seemed appropriate to take into account changing foreign exchange rates and other factors when raising the amount of financial security. Accordingly, that amount has now been raised from Y 10 billion to Y 30 billion, also considering insurance capacity.

The provisions on response for nuclear damage across the border, and the cost of evacuating residents from surrounding areas should an emergency occur, were also examined during the revision of the Compensation Law. However they remained unchanged because they were considered adequate.

## ● Mexico

### RADIATION PROTECTION

#### 1988 General Radiological Safety Regulations

The above Regulations of 8th November 1988 were published in the Official Gazette (Diario Oficial) on 22nd November 1988 and entered into force on the day following their publication. They were made in implementation of the radiation protection principles laid down by the 1984 Act on the administration and control of nuclear energy (see Nuclear Law Bulletin No. 35).

These Regulations, which repeal all other national regulations on the same subject, contain administrative and technical provisions governing radioactive installations and radiation sources, including radiation-emitting devices. They lay down a licensing system for activities involving radioactive materials. The competent licensing authority in this respect is the National Nuclear Safety and Safeguards Commission, under the control of the Ministry of Energy, Mines and Industry.

In view of the very technical nature of these Regulations, and as its provisions are in general similar to those of other national radiation protection regulations, it was not considered necessary to analyse them in detail. However, to give a brief indication of the contents of the Regulations, the main headings are given below.

Parts I and II deal with general purposes and terminology, Part III covers the system of dose limitation, dose equivalent limits and exposure conditions as well as the measures to be taken for planned or emergency exposures. Part IV concerns sealed and unsealed ionizing radiation sources and radiation-emitting devices while Part V prescribes the system

applicable to radioactive installations. Parts VI and VII respectively deal with radiation monitoring equipment, dosimetry and decontamination as well as the tasks of personnel responsible for radiological safety and monitoring of occupationally exposed workers. Part VIII relates to medical applications, Part IX which deals with radiation accidents also provides for preventive and safety measures. Part X contains provisions on the licensing system for ionizing radiation sources. Finally, Part XI covers administrative procedures and sanctions which may be imposed in case of non-compliance with these Regulations.

## ● *Poland*

### NUCLEAR LEGISLATION

#### 1986 Atomic Energy Act

The Atomic Energy Act of 10th April 1986 was briefly summarised in Nuclear Law Bulletin No 40. An unofficial translation of the Act is reproduced in the Supplement to this issue of the Bulletin.

## ● *South Africa*

### NUCLEAR LEGISLATION

#### Nuclear Energy Amendment Act, 1988

The Nuclear Energy Amendment Act, 1988 (Act No 56, published in the Government Gazette of 17th June 1988) was assented to on 1st June 1988. It amends the Nuclear Energy Act, 1982 (see Nuclear Law Bulletin No 35), in particular, to give a legal personality to the Council for Nuclear Safety and make further provision to protect the public in the event of nuclear damage.

Previously, the Council's mission was essentially of an advisory nature in that it advised the Minister for Mineral and Energy Affairs (the competent authority for nuclear activities) and the Atomic Energy Corporation of South Africa Ltd on licensing questions, as well as on health and safety in nuclear installations and during the production, use, storage, disposal or transport of nuclear material.

The Corporation, a company with share capital owned by the State and under the Minister's supervisory authority, is responsible for nuclear development and power production generally. It did not require to be licensed for its activities and was, in effect, the licensing authority for nuclear activities. Henceforth, the Council for Nuclear Safety is responsible for issuing licences for the above-mentioned nuclear activities.

Accordingly, the 1988 Act amends the 1982 Act where necessary to give a legal personality to the Council, whose objects are "with a view to safeguarding the public against nuclear damage, to regulate and exercise control, through the issue of nuclear licences" over nuclear installations and activities involving nuclear material.

## ● *United States*

### ORGANISATION AND STRUCTURE

#### President's Commission on Catastrophic Nuclear Accidents (1988)

The Atomic Energy Act as amended in 1988 (see Nuclear Law Bulletin No 42) requires the President to establish a "study commission" (of from seven to eleven members for a term of not more than two years) to examine the means of fully compensating victims of a nuclear incident where the damage exceeds the limit of aggregate public liability. The study commission must submit a report to the Congress setting forth recommendations for

- a) any changes in the laws and rules governing the liability and civil procedures necessary for the equitable, prompt, and efficient resolution and payment of valid damage claims,
- b) any standards or procedures necessary to establish for the hearing, resolution, and payment of claims when the awards are likely to exceed the amount of funds available within a specific time period, and
- c) special standards or procedures necessary to decide and pay claims for latent injuries caused by the nuclear incident.

The President established the above Commission by Executive Order 12658 on 18th November 1988 (amended by Executive Order 12665 of 12th January 1989)

## REGIME OF NUCLEAR INSTALLATIONS

### Recent amendments of NRC Regulations

#### **Departure from licence conditions in a national security emergency (1989)**

The Nuclear Regulatory Commission (NRC) has revised, effective 20th March 1989, its Regulation 10 CFR Part 50 to allow a facility licensee to take action that departs from a licence condition or a technical specification in a national security emergency. This is permitted when the action is immediately needed to implement national security objectives as directed by the Executive through the NRC and, no action consistent with licence conditions and technical specifications that can meet national security objectives is immediately apparent. A national security emergency is established by a law enacted by the Congress or by an order or directive issued by the President pursuant to statutes or the Constitution of the United States.

#### **Electricity failures affecting nuclear power plants (1988)**

On 21st June 1988, the Nuclear Regulatory Commission published amendments to its Regulations in 10 CFR Part 50 to require that licensed light water-cooled nuclear power plants be capable of withstanding a total loss of alternating current (AC) electric power for a specified duration and maintaining reactor core cooling during that period. The specified power plant blackout duration, to be evaluated and approved by the NRC, must be based on the redundancy of the on-site emergency AC power sources; the reliability of the on-site emergency AC power sources, the expected frequency of loss of off-site power, and the probable time needed to restore off-site power.

#### **Emergency core cooling systems (1988)**

On 16th September 1988, the Nuclear Regulatory Commission published amendments to its Regulations in 10 CFR Part 50 to allow the use of alternative methods to demonstrate that the emergency core cooling system (ECCS) would protect the nuclear reactor core during a postulated design basis loss-of-coolant accident (LOCA). The NRC took this action because research performed since the prior rule was written showed that calculations performed using methods and in accordance with the prior requirements resulted in estimates of cooling system performance that were significantly more conservative than estimates based on the improved knowledge gained from this research. While those methods are conservative, they do not result in accurate calculation of what would actually occur in a nuclear power plant during a LOCA and might result in less than optimal ECCS design and operating procedures. In addition, the operation of some nuclear reactors was being unnecessarily restricted by the prior rule, resulting in increased costs of electricity generation. The amendments, while continuing to allow the use of prior methods and requirements, also allow the use of more recent information and knowledge to demonstrate that the ECCS would protect the reactor during

the LOCA. The amendments, which apply to all applicants for and holders of construction permits or operating licences for light water reactors, also relaxed requirements for certain reporting and analyses which do not contribute to safety.

#### **Emergency planning and preparedness for nuclear power plant fuel loading and low-power testing (1988)**

On 23rd September 1988, the Nuclear Regulatory Commission published amendments to its rules in 10 CFR Part 50 which establish more clearly what emergency planning and preparedness requirements are needed for fuel loading and low power testing of nuclear power plants. The rule now requires NRC findings on the licensee's emergency plans for dealing with accidents that could affect persons on-site. The Commission's practice of considering certain off-site elements of a licensee's plans has been modified and codified to provide that NRC findings will be required before fuel loading or low power testing in co-ordination with off-site personnel and agencies so that necessary resources can be applied on-site for mitigating and containing accidents, and so that off-site agencies may be kept informed of plant events.

#### **Decommissioning nuclear facilities (1988)**

On 27th June 1988, the Nuclear Regulatory Commission published amendments to a number of provisions in its Regulations (10 CFR Parts 30, 40, 50, 51, 70 and 72) that provided general requirements for decommissioning nuclear facilities.

The Regulations establish criteria in the following areas: acceptable decommissioning alternatives, planning for decommissioning, assurance of the availability of funds for decommissioning; and environmental review requirements related to decommissioning.

Decommissioning is defined as removal of a nuclear facility safely from service and reduction of residual radioactivity to a level that permits release of the property for unrestricted use and termination of the licence. Decommissioning activities are initiated when a licensee decides to terminate licensed activities. Decommissioning activities do not include the removal and disposal of spent fuel which is considered to be an operational activity or the removal and disposal of non-radioactive structures and materials beyond that necessary to terminate the licence.

These amendments apply to the decommissioning of power reactors, non-power reactors, fuel reprocessing plants, fuel fabrication plants, uranium hexafluoride production plants, independent spent fuel storage installations, and non-fuel cycle nuclear facilities. The NRC's objective is that decommissioned facilities would ultimately be available for unrestricted use for any public or private purpose. Acceptable levels of residual radioactivity for release of property for unrestricted use are not included in rulemaking. NRC is participating in an interagency working group, organised by the Environmental Protection Agency (EPA), developing Federal guidance on this subject. Proposed Federal Guidelines are anticipated to be published by

EPA which has issued an advance notice of proposed rulemaking (51 FR 22264, 18th June 1986) Meanwhile, NRC is developing interim guidance with respect to residual contamination criteria

The amendments to Part 50 require that an applicant for a facility operating licence submit information in the form of a report indicating how reasonable assurance will be provided that funds will be available to decommission the facility

Revised Part 50 provides that a licensee may apply to the Commission for authority to surrender a licence voluntarily and to decommission the facility For a facility that permanently ceases operation after 27th July 1988, the application must be made within two years following permanent cessation of operations, and in no case later than one year prior to expiration of the operating licence Each application for termination of a licence must be accompanied, or preceded, by a proposed decommissioning plan

The proposed decommissioning plan must include the choice of the alternative for decommissioning with a description of activities involved

- for an electric utility licensee, an alternative is acceptable if it provides for completion of decommissioning within sixty years,
- for a licensee other than an electric utility, an alternative is acceptable if it provides for completion of decommissioning without significant delay Factors to be considered in making those evaluations include unavailability of waste disposal capacity and other site specific factors affecting the licensee's capability to carry out decommissioning safely, including the presence of other nuclear facilities at the site

The following information must also be provided.

- a description of controls and limits on procedures and equipment to protect occupational and public health and safety,
- a description of the planned final radiation survey,
- an updated cost estimate for the chosen alternative for decommissioning, comparison of that estimate with present funds set aside for decommissioning, and plan for assuring the availability of adequate funds for completion of decommissioning,
- a description of technical specifications, quality assurance provisions and physical security plan provisions in place during decommissioning

Decommissioning plans which propose an alternative that delays completion of decommissioning by including a period of storage or long-term surveillance must provide that funds needed to complete decommissioning be placed into an account segregated from licensee assets and outside the licensee's administrative control during the storage or surveillance period, or a surety method or fund statement of intent be maintained in accordance

with specified criteria. Also, means must be included for adjusting cost estimates and associated funding levels over the storage or surveillance period.

If the decommissioning plan demonstrates that the decommissioning will be performed in accordance with NRC regulations and will not be inimical to the common defence and security or to the health and safety of the public, and after notice to interested persons, the Commission will approve the plan subject to such conditions and limitations as it deems appropriate and necessary and issue an order authorising the decommissioning.

The Commission will terminate the licence if it determines that

- the decommissioning has been performed in accordance with the approved decommissioning plan and the order authorising decommissioning, and
- the terminal radiation survey and associated documentation demonstrates that the facility and site are suitable for release for unrestricted use.

The NRC, in connection with the amendment of an operating licence to authorise the decommissioning of a production or utilisation facility will prepare a supplemental environmental impact statement or an environmental assessment, as appropriate.

#### NRC policy statement on the conduct of nuclear power plant operations (1989)

The NRC issued, effective 24th January 1989, a policy statement to make clear its expectation of utility management and licensed operators with respect to the conduct of nuclear power plant operations. The NRC stated its belief that it is essential that utility management at each nuclear power facility establish and maintain a professional working environment with a focus on safety in control rooms and throughout the plant. The NRC also emphasized that each individual licensed by the NRC to operate the controls of a nuclear power reactor must be keenly aware that his or her first responsibility is to assure that the reactor is in a safe condition at all times.

The NRC stated that facility management has a duty and obligation to foster the development of a "safety culture" at each facility and to provide a professional working environment, in the control room and throughout the facility, that assures safe operations.

It was further stated that nuclear power plant operators have a professional responsibility to ensure that the facility is operated safely and within the requirements of the facility's licence, including its technical specifications and the regulations and orders of the NRC.

For nuclear power plant operators, the NRC criteria include

- Conduct within the control room should always be professional and proper, reflecting a safety-minded approach to routine operations. The operator "at the controls" and the immediate supervisor must



never relinquish their safety responsibilities unless properly relieved, including a thorough turnover briefing, by a qualified operator

- Activities within the control room should be performed with formality. Operator actions must be in accordance with approved procedures. Verbal communications should be clear and concise. Appropriate consideration should be given to the need for acknowledgement and verification of instructions received
- The control room of a nuclear power plant, and in particular the area "at the controls", must be secure from intrusion. Access should be strictly controlled by a designated authority, only authorised personnel should be permitted to be present in the control room, and regulatory restrictions concerning manipulation of the controls must be meticulously observed
- The operator at the controls, and the immediate supervisor, must be continuously alert to plant conditions and ongoing activities affecting plant operations, including conditions external to the plant such as grid stability, meteorological conditions, and change in support equipment status, operational occurrences should be anticipated, alarms and off-normal conditions should be promptly responded to, and problems affecting reactor operations should be corrected in a timely fashion
- Activities within the control room should be limited to those necessary for the safe operation of the plant. Management should provide the direction, facilities, and resources needed to accommodate activities not directly related to plant operations.
- Activities outside the control room with the potential to affect plant operations, such as on-line maintenance and surveillance, should be fully co-ordinated with the control room. Effective methods for communication with or notification of the operator at the controls should be established and maintained throughout each evolution.
- Written records of plant operations must be carefully prepared and maintained in accordance with requirements for such records and in sufficient detail to provide a full understanding of operationally significant matters
- The working environment in the control room should be maintained to minimise distractions to the operators. Management should act to remove distractions that would interfere with the operator's ability to monitor the plant either audibly or visually, including work activities that are not related to the operator's immediate responsibility for safe plant operation. Consideration should be given to reducing environmental distractions such as lighted alarms that are not operationally significant, or signals that signify normal operating conditions

- Foreign objects and materials not necessary for plant operations, ongoing maintenance, or surveillance testing should be restricted from the area "at the controls" to preclude inadvertent actuation of the controls or contamination of control devices

Under the U S Administrative Procedure Act, a policy statement does not have the force and effect of law, but is merely a statement issued by an agency to advise the public prospectively of the manner in which the agency proposes to exercise a discretionary power

## RADIOACTIVE WASTE MANAGEMENT

### NRC licensing requirements for the independent storage of spent nuclear fuel and high-level radioactive waste (1988)

On 19th August 1988, the Nuclear Regulatory Commission published a revision to its Regulation 10 CFR Part 72 and conforming amendments to other parts of its regulations. The revised Part 72 provides for licensing and storage of spent fuel and high-level waste in a monitored retrievable storage facility, as required by the Nuclear Waste Policy Act of 1982, as amended (see Nuclear Law Bulletin No. 35). Revised Part 72 also, among other things, clarifies the backfitting requirements of that part to conform to the decision of the U.S Court of Appeals in Union of Concerned Scientists v NRC, (see Nuclear Law Bulletin No. 40) and provides an opportunity for a hearing prior to first receipt of spent fuel or high-level radioactive waste

### NRC criteria and procedures for emergency access to certain low-level waste disposal facilities (1989)

The NRC promulgated, effective 6th March 1989, its Criteria and Procedures for Emergency Access to Non-Federal and Regional Low-Level Waste Disposal Facilities, 10 CFR Part 62, to provide for emergency access to operating non-Federal or regional low-level radioactive waste disposal facilities under Section 6 of the Low-Level Radioactive Waste Policy Amendments Act of 1985 (see Nuclear Law Bulletin No 37) It was thought that such emergency access might be necessary if a generator of low-level radioactive waste were denied access to such facilities and lack of such access resulted in a serious and immediate threat to the public health and safety or the common defence and security

## THIRD PARTY LIABILITY

### Financial protection requirements and indemnity agreements (1988)

On 18th August 1988, the Nuclear Regulatory Commission amended its Regulation 10 CFR Part 140 (Financial Protection Requirements and Indemnity Agreements) to make several minor changes in the facility form nuclear

liability insurance policy furnished as evidence of financial protection under the Price-Anderson Act. The nuclear insurance pools submitted endorsements to the Facility Form Policy that make available a single insurance policy to cover on-site worker claims. The supplementary insurance provided by the new policy enhances protection to the public since payments under its provisions for routine claims by on-site nuclear workers will not reduce the financial protection for the public under the primary and secondary nuclear liability insurance policies provided as evidence of financial protection under the Price-Anderson Act.

#### Amendments to reflect enactment of Price-Anderson Amendments Act of 1988

On 20th December 1988, the Nuclear Regulatory Commission published proposed amendments to the Regulations in 10 CFR Part 140 to conform to changes made to the Price-Anderson Act by "The Price-Anderson Amendments Act of 1988," which was enacted on 20th August 1988 (the consolidated text of the Price-Anderson Act, as amended in 1988 is reproduced in the Supplement to Nuclear Law Bulletin No. 42). The Commission also proposed to amend its regulations to increase the level of the primary layer of financial protection required of certain indemnified licensees. The provisions of Section 170 of the Atomic Energy Act of 1954, as amended, require production and utilization facility licensees to have and maintain financial protection to cover public liability claims. Therefore, the Commission proposed to amend its regulations to coincide, as statutorily required, with the increase in the level of the primary layer of insurance provided by private nuclear liability insurance pools. The insurers who provide the nuclear liability insurance, American Nuclear Insurers (ANI) and Mutual Atomic Energy Liability Underwriters (MAELU), have advised the Commission that the maximum amount of primary nuclear energy liability insurance available has been increased from \$160 million to \$200 million. Pursuant to the provisions of subsection 170b of the Act, the amount of primary financial protection required for facilities having a rated capacity of 100,000 electrical kilowatts or more was proposed to be increased to \$200 million.

The proposed amendments reflected the increase in the amount of the deferred premium layer of financial protection required of large power reactor licensees from \$5 million per facility per incident to \$63 million per facility per incident, also, no licensee is required to pay out more than \$10 million per facility in any one year. In the event of a catastrophic nuclear accident, the Commission, on a case-by-case basis, may assess an annual deferred premium less than the standard amount (\$10 million) on the basis of criteria contained in the Act.

The proposed amendments also reflected the inclusion of the costs of a precautionary evacuation in the definition of "public liability" and the elimination of the twenty-year statute of limitations for bringing suit following an "extraordinary nuclear occurrence."

The revision of 10 CFR Part 140, expected to become effective shortly, includes some non-substantive and corrective changes. It also incorporates in Part 140 the requirement for the imposition of a surcharge above the \$63 million deferred premium assessment as specified in subsection 170 o(1)(E).

of the Act, and clarifies that the \$10 million annual deferred premium would be assessed on a "per incident" basis, as implied in the Act and as clearly specified in the legislative history

## REGULATIONS ON NUCLEAR TRADE

### Implementation of the U S -Canada Free-Trade Agreement (1988)

On 28th September 1988, the President signed into law the United States-Canada Free-Trade Agreement Implementation Act of 1988. The statute took effect on the date the Agreement entered into force, namely, on 1st January 1989.

Subsection 305(b) of that Act amends subsection 161v of the Atomic Energy Act of 1954, as amended. That Section provides, in pertinent part, as amended, that the Nuclear Regulatory Commission is authorised to

"(B) enter into contracts to provide, after December 31, 1986, for the producing or enriching of special nuclear material in facilities owned by the Commission in accordance with and within the period of an agreement for co-operation arranged pursuant to Section 123 while comparable services are made available pursuant to paragraph (A) of this subsection.

Provided, That (1) prices for services under paragraph (A) of this subsection shall be established on a nondiscriminatory basis, (11) prices for services under paragraph (B) of this subsection shall be no less than prices under paragraph (A) of this subsection, and (111) any prices established under this subsection shall be on a basis of recovery of the Government's costs over a reasonable period of time. And provided further, That the Commission, to the extent necessary to assure the maintenance of a viable domestic uranium industry, shall not offer such services for source or special nuclear materials of foreign origin intended for use in a utilization facility within or under the jurisdiction of the United States. For the purposes of this subsection and of Section 305 of P.L. 99-591 (100 Stat. 3341-209, 210), "foreign origin" excludes source or special nuclear material originating in Canada. The Commission shall establish criteria in writing setting forth the terms and conditions under which services provided under this subsection shall be made available including the extent to which such services will be made available for source or special nuclear material of foreign origin intended for use in a utilization facility within or under the jurisdiction of the United States. "

Thus, under the Free-Trade Agreement Implementation Act, Canadian-origin uranium would no longer be subject to the limitations on enrichment of foreign-origin uranium provided for in the above-quoted subsection before amendment. In effect, the above-quoted subsection clearly applies to the U.S. Department of Energy, as the operator of U S enrichment facilities, rather than the NRC.

## • Uruguay

### ORGANISATION AND STRUCTURE

#### 1986 Act creating the National Nuclear Technology Directorate and related texts

Act No 15 809 of 8th April 1986, published in the Uruguayan Official Gazette of 21st April 1986 (No 22141), substantially alters the organisation and structure of Uruguay's atomic sector by the creation of the National Nuclear Technology Directorate and the transfer to it of almost the totality of the objectives and functions previously coming under the National Atomic Energy Commission

Since 1955, all state activity relevant to atomic energy had been administered by the National Atomic Energy Commission acting as the only state authority responsible for advice, regulation, promotion and control regarding nuclear technology and its implementation for peaceful purposes.

Under the new Act, the National Atomic Energy Commission is to remain responsible for advising the Central Administration on matters concerning nuclear national and international policy, while the new National Nuclear Technology Directorate takes over the role of regulating nuclear technology, promoting its implementation, and controlling all aspects related to radiological protection and nuclear safety in general

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Three other texts also bring about changes in the organisation of nuclear activities in Uruguay

Act No 15 903 of 10th November 1987, published in the Uruguayan Official Gazette on 18th November 1987 (No 225 06), authorises the National Nuclear Technology Directorate to supply diverse services covering the monitoring of radioactivity analysis of foodstuffs, monitoring of water and the environment, tracer elements in different foodstuffs and in minerals and other geological samples The Directorate is authorised to collect charges for those services on the basis of their real cost

Also, a Decree of the Executive (President of the Republic acting in the Council of Ministers) of 8th February 1989 (not yet published) sets up an Advisory Council on Licensing The Council will advise the National Nuclear Technology Directorate on all matters regarding licences under Decree No 519/84. (See Nuclear Law Bulletin No 37 and above). It will be constituted by representatives and delegates from the Ministries of Industry and Energy, Public Health, and Work and Social Security

A Decree of the Executive (President of the Republic acting in the Council of Ministers) of 1989 (not yet published in the Official Gazette) modifies Decree No 519/84 of 21st November 1984 (see Nuclear Law Bulletin No 37) It establishes the National Nuclear Technology Directorate as the competent authority for securing implementation of the provisions of that Decree in replacement of the National Atomic Energy Commission

This amendment follows from the changes made to the organisation of the atomic sector by Act No 15 809 (see above)

## ● USSR

### REGIME OF RADIOACTIVE MATERIALS

#### 1988 Decree on criminal liability for illegal activities involving radioactive materials

The above Decree of 3rd March 1988 was adopted by the Presidium of the USSR Supreme Soviet in furtherance of the Convention on the Physical Protection of Nuclear Material to which the Soviet Union is a Party The Decree was published in Vedomosti Soveta SSSR, 1988, No. 10, Serial No 152, Socialisticeskaja Zakonnost, 1988, No 6, p 65

The Decree lays down a series of sanctions for the illegal acquisition, possession, use, transfer or disposal of radioactive materials including their theft Such materials cover ionizing radiation sources, radioactive substances and nuclear materials. According to the severity of the violation, the sanctions range from three to ten years' imprisonment or a fine, for example

- up to ten years' imprisonment for having caused serious injury or death;
- up to three years' imprisonment for threatening to steal or use radioactive materials,
- up to two years' imprisonment or a fine of up to 300 rubles for non-observance of control conditions

## • *Yugoslavia*

### RADIATION PROTECTION

#### Status of the Radiation Protection Regulations (1989)

Following the adoption of a number of new regulations on the basis of the 1984 Act on radiation protection and the safe use of nuclear energy (the text of the Act is reproduced in the Supplement to Nuclear Law Bulletin No 36), the legislation on radiation protection is now complete in Yugoslavia. The list of the texts in force in early 1989 is given below. Whenever a text has been analysed in the Nuclear Law Bulletin, reference is made to the relevant issue

- Regulation on monitoring of contamination with radioactive substances (Official Gazette of the Socialist Federative Republic of Yugoslavia - SFRY No 40/86),
- Regulation on collecting, accounting, processing, storing, final disposal and release of radioactive waste into the environment (Official Gazette of the SFRY No 40/86),
- Regulation on trading and utilisation of radioactive materials exceeding certain limits, X-ray apparatus and other apparatus producing ionizing radiation as well as measures for protection from radiation emitted by such sources (Official Gazette of the SFRY No. 40/86);
- Regulation on professional qualifications, physical fitness and medical examinations of persons operating ionizing radiation sources (Official Gazette of the SFRY No 40/86),
- Regulation on dose equivalent limits for members of the public and for occupational exposure, on measurements of occupational exposure and on monitoring of the working environment (Official Gazette of the SFRY No 40/86) (see Nuclear Law Bulletin No 39),
- Regulation on the marketing conditions for drinking water, foodstuffs and articles in common use if they contain radioactive materials exceeding the prescribed limits of activity (Official Gazette of the SFRY No 23/86),
- Regulation on monitoring of radioactive contamination in the vicinity of nuclear facilities (Official Gazette of the SFRY No. 51/86) (see Nuclear Law Bulletin No 38),
- Regulation on the records for accounting of sources of ionizing radiation and irradiation of the population and workers (Official Gazette of the SFRY No. 40/86),

- Regulation on conditions for the application of ionizing radiation sources for medical purposes (Official Gazette of the SFRY Nos. 40/86, 8/87),
- Regulation on maximum established limits for radioactive contamination of the environment and on decontamination (Official Gazette of the SFRY No 8/87)

In addition, further regulations were adopted on a different legal basis, in particular

- the Regulation on conditions for marketing foods and articles of general use treated by irradiation (Official Gazette of the SFRY No 68/84) (see Nuclear Law Bulletin No 35),
- the Regulation on technical norms for the research, exploitation and preparation of nuclear ores (Official Gazette of the SFRY Nos 39/85 and 40/86).



# INTERNATIONAL REGULATORY ACTIVITIES

## ● *OECD Nuclear Energy Agency*

### OECD PROJECT TO INVESTIGATE THE THREE MILE ISLAND 2 REACTOR PRESSURE VESSEL

On 27th June 1988 a project to investigate the Three Mile Island 2 reactor pressure vessel was established under the auspices of the OECD Nuclear Energy Agency by Agreement between organisations of eleven of its Member countries: Belgium, Finland, France, the Federal Republic of Germany, Italy, Japan, Spain, Sweden, Switzerland, the United Kingdom and the United States. It is recalled that the Three Mile Island 2 reactor has been out of operation since the accident there in March 1979. Under the Agreement, samples will be removed from the bottom wall of the vessel itself and examined to determine the extent of damage to the vessel caused by the accident. This information should contribute to an increased understanding of events during core melt and the capability of a reactor vessel to retain molten fuel - information important to the management of severe accidents. Work under the Project will mainly be carried out on behalf of all the Parties by the United States Nuclear Regulatory Commission which proposed the Project. Some sample analysis under the Project will, however, be carried out by other Parties. The Agreement will remain in force until 30th September 1991.

## ● *International Atomic Energy Agency*

### IAEA EMERGENCY RESPONSE SYSTEM FORMALLY IN OPERATION

On 18th January 1989, the Secretariat of the International Atomic Energy Agency (IAEA) put the Emergency Response System of the Agency formally into operation.

The Emergency Response System which was established by the IAEA to meet its obligations under the Convention on Early Notification of a Nuclear Accident (Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (Assistance Convention), has been in interim operation since 7th March 1988 (The status of signatures and ratifications of the Conventions is given under "Multilateral Agreements" in this issue of the Bulletin - see also the Supplement to No 38 for the texts of the Conventions )

The two basic documents NAREAP (Nuclear Accident/Radiological Emergency Assistance Plan) and ENATOM (Emergency Notification and Assistance Technical Operations Manual), which supersede all previous documents in this area, also came into force on 18th January 1989.

The document ENATOM contains information on the assistance which Member States and international organisations can provide in the case of a nuclear accident or a radiological emergency and practical suggestions on how such assistance can be requested or provided This document will be made available to all Member States and relevant international organisations

The World Meteorological Organization (WMO) and the Agency have agreed to use the Global Telecommunication System (GTS) of WMO in support of the Early Notification Convention. The Manual on the use of the WMO-GTS for the Early Notification Convention will also be made available to all Member States of the Agency and WMO.

# AGREEMENTS

## BILATERAL AGREEMENTS

### ● *Argentina - Peru*

#### JOINT DECLARATION ON PEACEFUL NUCLEAR CO-OPERATION (HUARANGAL DECLARATION - 1988)

On the occasion of the inauguration of the Huarangal Nuclear Centre in Peru, the Presidents of Argentina and Peru signed a joint Declaration on 19th December 1988, in furtherance of the Agreement on co-operation in the peaceful uses of nuclear energy concluded between both countries on 25th May 1968

The Declaration, acknowledging the joint efforts of the Argentine National Atomic Energy Commission (NAEC) and the Peruvian Institute for Nuclear Energy (INE) in establishing the Huarangal Nuclear Centre, confirmed both countries' wish to extend their technical co-operation in the nuclear field.

This technical co-operation will cover, in particular, provision by the NAEC of information on its experience in nuclear power generation to the INE, with emphasis on data on the Carem reactor, presently being developed in Argentina. Also, as regards the Macusani uranium mining district in the Puno country, Peru, Argentinian companies will participate in the project to assess the economic potential of the deposit.

### ● *Denmark - F.R. of Germany*

#### AGREEMENT ON NUCLEAR SAFETY AND RADIATION PROTECTION (1987)

The German Federal Minister for the Environment, Nature Conservation and Reactor Safety and the Danish Minister for Environmental Protection signed an Agreement on questions of common interest in connection with nuclear safety and radiation protection on 13th October 1987, in Copenhagen. It was published on 24th November 1988 in Bundesgesetzblatt 1988 II p 1099.

The preamble of the Agreement refers to the 1977 Agreement concluded between both countries on exchange of information on the construction of nuclear installations in border areas (see Nuclear Law Bulletin No 22), to

the IAEA 1986 Convention on Early Notification of a Nuclear Accident, and to the Council of the European Communities' Directive 80/836 EURATOM of 15th July 1980

The Parties will inform each other periodically on development of the peaceful uses of nuclear energy and on the relevant legislation. This information will cover documented experience acquired from the operation of nuclear installations, including safety and radiation protection systems and measures to limit the release of radioactivity, provided such information is useful for evaluating the possible consequences of a nuclear accident within the meaning of Article 1 of the Early Notification Convention.

In implementation of the Early Notification Convention, the Agreement provides that the States Parties must inform each other directly and without delay on any nuclear accident. Moreover, information must also be provided about any extraordinary increase of radioactivity in cases other than those referred to in Article 1 of the Convention.

The Agreement entered into force on 30th September 1988 and was concluded for an unlimited period of time, unless a Party wishes to terminate it by giving six months' written notification.

## ● *France - F.R. of Germany*

### EXTENSION OF THE AGREEMENT ON CO-OPERATION IN LIGHT WATER REACTOR SAFETY (1988)

The Agreement of 28th September 1978, on exchange of information and co-operation in the field of safety research on light water reactors, extended by an Additional Agreement of 28th September 1983 (see Nuclear Law Bulletin Nos 23 and 35), has been extended once again by a Second Additional Agreement of 20th September 1988 (Bundesgesetzblatt 1989 II p 15). The Agreement updates the list of the fields of technical co-operation. It entered into force on 28th September 1988, for a period of five years.

## ● *France - Luxembourg*

### ADDENDUM TO THE 1962 AGREEMENT ON MUTUAL ASSISTANCE BETWEEN THE FRANCE AND LUXEMBOURG FIRE BRIGADES AND RESCUE SERVICES (1988)

This Addendum was concluded by an exchange of letters in Luxembourg on 12th September 1988 (published in the French Official Gazette - JORF - on

21st December 1988). The amendments made by this Addendum refer to nuclear accidents or other radiological emergency situations. It is provided that in case of a nuclear accident or radiological emergency with transborder consequences, irrespective of the country of origin, each State will give the assistance required insofar as possible. Mutual assistance also covers hospitality to injured or endangered persons. The conditions are to be immediately discussed between the competent authorities of both countries. In the framework of the regulations in force in their respective territories, the Parties will take the necessary measures, in consultation, to facilitate the crossing of their borders by persons supplying assistance. Such measures will not be reimbursed by the other Party.

## ● *France-Switzerland*

### AGREEMENT ON MUTUAL ASSISTANCE IN THE EVENT OF CATASTROPHES AND SERIOUS ACCIDENTS (1987)

The above Agreement, signed on 14th January 1987 in Berne, was formally approved in France by Act No 88-1255 of 30th December 1988 (published in the Journal Officiel de la République française of 4th January 1989). The Agreement itself was published by Decree No 89-207 of 7th April 1989 in the JORF of 9th April 1989.

The Agreement lays down a comprehensive legal framework for mutual emergency assistance. It provides that rescue teams will be sent by the Parties in all cases of catastrophe and serious accidents, including nuclear incidents. The Agreement also contains provisions on administrative competences, on quick border crossings by the rescue teams as well as on their supervision. Finally, other provisions settle the question of the costs incurred by assistance, compensation for damage and exchange of information.

## ● *F.R. of Germany-Norway*

### AGREEMENT ON NUCLEAR SAFETY AND RADIATION PROTECTION (1988)

On 10th May 1988, the Government of the Federal Republic of Germany and the Government of the Kingdom of Norway signed an Agreement on questions of common interest in connection with nuclear safety and radiation protection. The Agreement was published on 24th November 1988 in Bundesgesetzblatt 1988 II p. 1097.

The purpose of the Agreement is to implement the 1986 Convention on Early Notification of a Nuclear Accident between both countries, and to exchange additional information on the development of the peaceful uses of nuclear energy

To this end, the Contracting Parties agree to inform each other periodically on the status of the development of the peaceful uses of nuclear energy. This information will cover documented experience acquired from the operation of nuclear installations, including safety and radiation protection systems and measures to limit the release of radioactive substances, provided such information is useful for evaluating the possible consequences of a nuclear accident within the meaning of the Early Notification Convention

In the event of a nuclear accident within the meaning of that Convention, the Parties must inform each other without delay directly in accordance with the provisions of Article 5 thereof. The same procedure applies in case of an extraordinary increase of radioactivity in cases other than those referred to in Article 1 of the Convention

The Agreement entered into force on 30th August 1988 and was concluded for an unlimited period of time. It may be terminated at six months' written notice

## ● *United States - USSR*

### 1988 MEMORANDUM OF CO-OPERATION IN THE FIELD OF NUCLEAR REACTOR SAFETY

On 26th April 1988, the United States signed a Memorandum of Co-operation in the Field of Nuclear Reactor Safety as an addendum to the 1973 Agreement for Co-operation on Scientific and Technical Co-operation in the Field of Peaceful Uses of Atomic Energy (see Nuclear Law Bulletin No 12) This Agreement covered the fields of high-energy physics, nuclear fusion, and fast breeder reactors, and provided that other areas of co-operation could be added by mutual agreement between the Parties. The Agreement which was to initially remain in force for ten years, was amended and extended by an exchange of notes in 1983.

The Memorandum of Co-operation establishes, in Article I, an arrangement for co-operation specifically in the field of civilian nuclear reactor safety. Its goal is to increase civilian nuclear reactor safety and to improve the regulatory methods and practices applicable to these reactors

Article II provides that the areas of co-operation will be policy and practices of regulatory activity regarding the safety of civilian nuclear reactors; problems of safety in design, construction, training, operation, and management of these reactors; research directed at improving safety, and

health effects and environmental protection requirements arising from the use of these reactors. The "civilian nuclear reactors" covered include nuclear reactor plants for electrical power generation, urban and industrial heating, and other related uses as may be agreed to by both Parties.

Article III establishes a Joint Co-ordinating Committee on Civilian Nuclear Reactor Safety. This Committee is to present its proposed programmes, together with any recommendations, if needed, to add such programmes to the Memorandum, for review and approval by the Joint Soviet-American Committee on Co-operation in the Peaceful Uses of Atomic Energy, established under the 1973 Agreement, in accordance with the laws and regulations of the Parties.

Co-operation under the Memorandum may, pursuant to Article IV, be conducted according to plans and programmes of the following principal establishments and organisations as agreed to by the Parties pursuant to Article III 5 of the Memorandum: in the United States of America - the Nuclear Regulatory Commission, the Department of Energy, national laboratories, academies and institutes as appropriate, and other government departments and nuclear industry bodies as appropriate, in the Union of Soviet Socialist Republics - the State Committee for Utilisation of Atomic Energy, the Ministry of Atomic Energy, the State Committee for Supervision of Safety in the Nuclear Power Industry, and other ministries, organisations and institutes as appropriate.

The Memorandum entered into force upon signature and is to remain in force for five years, subject to extension by additional five-year terms by written agreement of the Parties following joint review at the end of each five-year period.

## MULTILATERAL AGREEMENTS

### CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL

The above Convention was opened for signature on 3rd March 1980 and, in accordance with its Article 19 1, entered into force on 8th February 1987, thirty days following the deposit of the twenty-first instrument of ratification. For States having ratified, accepted, approved or acceded to the Convention after that date, it entered into force thirty days following deposit of their instrument, in accordance with its Article 19 2 (for the text of the Convention, see Nuclear Law Bulletin No 24 )

The following table gives the status of signatures and ratifications of the Convention as at 11th January 1989.

**CONVENTION ON THE PHYSICAL PROTECTION OF NUCLEAR MATERIAL**

**Status of signatures and ratifications**

<u>State/Organisation</u>	<u>Date of signature</u>	<u>Place</u>	<u>Date of ratification</u>
Argentina	28 Feb. 1986	Vienna	6 Apr 1989
Australia	22 Feb. 1984	Vienna	22 Sep 1987
Austria	3 Mar. 1980	Vienna	22 Dec 1988
Belgium*	13 Jun. 1980	Vienna	
Brazil	15 May 1981	Vienna	17 Oct 1985
Bulgaria	23 Jun. 1981	Vienna	10 Apr 1984
Canada	23 Sep 1980	Vienna	21 Mar 1986
China			10 Jan 1989 (access )
Czechoslovakia	14 Sep 1981	Vienna	23 Apr 1982
Denmark*	13 Jun. 1980	Vienna	
Dominican Republic	3 Mar. 1980	New York	
Ecuador	26 Jun. 1986	New York	
EURATOM	13 Jun. 1980	Vienna	
Finland	25 Jun 1981	Vienna	
France*	13 Jun. 1980	Vienna	
German Democratic Republic	21 May 1980	Vienna	5 Feb 1981
Germany, Federal Republic of*	13 Jun 1980	Vienna	
Greece	3 Mar. 1980	Vienna	
Guatemala	12 Mar 1980	Vienna	23 Apr 1985
Haiti	9 Apr. 1980	New York	
Hungary	17 Jun. 1980	Vienna	4 May 1984
Indonesia	3 Jul 1986	Vienna	5 Nov 1986
Ireland*	13 Jun. 1980	Vienna	
Israel	17 Jun. 1983	Vienna	
Italy*	13 Jun. 1980	Vienna	
Japan			28 Oct 1988 (access )
Korea, Republic of	29 Dec 1981	Vienna	7 Apr 1982
Liechtenstein	13 Jan. 1986	Vienna	25 Nov 1986
Luxembourg*	13 Jun. 1980	Vienna	
Mexico			4 Apr 1988 (access )
Mongolia	23 Jan. 1986	New York	28 May 1986
Morocco	25 Jul 1980	New York	
Netherlands*	13 Jun. 1980	Vienna	
Niger	7 Jan 1985	Vienna	
Norway	26 Jan. 1983	Vienna	15 Aug 1985
Panama	18 Mar. 1980	Vienna	
Paraguay	21 May 1980	New York	6 Feb 1985

\* Signed as EURATOM Member State.



<u>State/Organisation</u>	<u>Date of signature</u>	<u>Place</u>	<u>Date of ratification</u>
Philippines	19 May 1980	Vienna	22 Sep 1981
Poland	6 Aug. 1980	Vienna	5 Oct 1983
Portugal	19 Sep 1984	Vienna	
Romania	15 Jan 1981	Vienna	
South Africa	18 May 1981	Vienna	
Spain*	7 Apr 1986	Vienna	
Sweden	2 Jul 1980	Vienna	1 Aug. 1980
Switzerland	9 Jan 1987	Vienna	9 Jan. 1987
Turkey	23 Aug 1983	Vienna	27 Feb 1985
Union of Soviet Socialist Republics	22 May 1980	Vienna	25 May 1983
United Kingdom of Great Britain and Northern Ireland*	13 Jun 1980	Vienna	
United States of America	3 Mar 1980	NY/Vienna	13 Dec. 1982
Yugoslavia	15 Jul 1980	Vienna	14 May 1986

**CONVENTIONS ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT AND ASSISTANCE IN CASE OF A NUCLEAR ACCIDENT OR RADIOLOGICAL EMERGENCY**

Both the above Conventions were opened for signature on 26th September 1986 and entered into force thirty days after consent to be bound had been expressed by three States. Accordingly, the Convention on Early Notification became effective on 27th October 1986 and the Convention on Assistance on 26th February 1987, in accordance with their Articles 12.3 and 14.3 respectively. For States having expressed such consent after those dates, they entered into force thirty days following such expression, in accordance with their Articles 12.4 and 14.4 respectively. (The text of both Conventions is reproduced in the Supplement to Nuclear Law Bulletin No. 38.)

The following tables give the status of signatures and ratifications of both Conventions as at 21st March 1989.

**CONVENTION ON EARLY NOTIFICATION OF A NUCLEAR ACCIDENT**

Status of signatures, ratifications, acceptances, approvals or accessions

<u>State/Organisation</u>	<u>Date of signature</u>	<u>Date of deposit of instrument</u>
Afghanistan*	26 Sep 1986	
Algeria*	24 Sep 1987	
Australia*	26 Sep 1986	22 Sep 1987 (ratif )

\* Reservation/declaration deposited upon or following signature/ratification.

<u>State/Organisation</u>	<u>Date of signature</u>	<u>Date of deposit of instrument</u>
Austria	26 Sep. 1986	18 Feb 1988 (ratif )
Bangladesh		7 Jan 1988 (access )
Belgium	26 Sep. 1986	
Brazil	26 Sep 1986	
Bulgaria*	26 Sep 1986	24 Feb 1988 (ratif )
Byelorussian Soviet Socialist Republic*	26 Sep. 1986	26 Jan 1987 (ratif )
Cameroon	25 Sep. 1987	
Canada*	26 Sep. 1986	
Chile	26 Sep. 1986	
China*	26 Sep. 1986	10 Sep. 1987 (ratif )
Costa Rica	26 Sep. 1986	
Côte d'Ivoire	26 Sep 1986	
Cuba*	26 Sep 1986	
Cyprus		4 Jan 1989 (access )
Czechoslovakia*	26 Sep. 1986	26 Sep. 1986 (on sign )
Democratic People's Republic of Korea*	29 Sep 1986	
Denmark	26 Sep. 1986	26 Sep 1986 (on sign )
Egypt*	26 Sep. 1986	6 Jul 1988 (ratif )
Finland	26 Sep. 1986	11 Dec. 1986 (approv )
France*	26 Sep. 1986	6 Mar 1989 (approv )
German Democratic Republic*	26 Sep. 1986	29 Apr 1987 (ratif )
Germany, Federal Republic of*	26 Sep. 1986	
Greece*	26 Sep. 1986	
Guatemala	26 Sep. 1986	8 Aug 1988 (ratif )
Holy See	26 Sep. 1986	
Hungary*	26 Sep. 1986	10 Mar 1987 (ratif )
Iceland	26 Sep. 1986	
India*	29 Sep 1986	28 Jan 1988 (ratif )
Indonesia*	26 Sep 1986	
Iran, Islamic Republic of	26 Sep. 1986	
Iraq*	12 Aug. 1987	21 Jul 1988 (ratif )
Ireland*	26 Sep. 1986	
Israel	26 Sep 1986	
Italy*	26 Sep. 1986	
Japan	6 Mar. 1987	9 Jun 1987 (accept )
Jordan	2 Oct 1986	11 Dec 1987 (ratif )
Lebanon	26 Sep. 1986	
Liechtenstein	26 Sep. 1986	
Luxembourg	29 Sep. 1986	
Malaysia*	1 Sep. 1987	1 Sep 1987 (on sign )
Mali	2 Oct 1986	
Mexico	26 Sep 1986	10 May 1988 (ratif )
Monaco	26 Sep 1986	
Mongolia*	8 Jan 1987	11 Jun 1987 (ratif )
Morocco	26 Sep. 1986	

Netherlands*	26 Sep 1986	
New Zealand		11 Mar 1987 (access )
Niger	26 Sep 1986	
Nigeria	21 Jan 1987	
Norway	26 Sep 1986	26 Sep 1986 (on sign )
Panama	26 Sep 1986	
Paraguay	2 Oct 1986	
Poland*	26 Sep 1986	24 Mar 1988 (ratif )
Portugal	26 Sep 1986	
Senegal	15 Jun 1987	
Sierra Leone	25 Mar 1987	
South Africa	10 Aug 1987	10 Aug 1987 (ratif.)
Spain	26 Sep 1986	
Sudan	26 Sep 1986	
Sweden	26 Sep 1986	27 Feb 1987 (ratif )
Switzerland	26 Sep 1986	31 May 1988 (ratif )
Syrian Arab Republic	2 Jul 1987	
Thailand*	25 Sep 1987	21 Mar 1989 (ratif )
Tunisia	24 Feb 1987	24 Feb. 1989 (ratif.)
Turkey*	26 Sep. 1986	
Ukrainian Soviet Socialist Republic*	26 Sep 1986	26 Jan 1987 (ratif.)
Union of Soviet Socialist Republics*	26 Sep. 1986	23 Dec 1986 (ratif.)
United Arab Emirates*		2 Oct. 1987 (access )
United Kingdom of Great Britain and Northern Ireland*	26 Sep 1986	
United States of America*	26 Sep 1986	19 Sep 1988 (ratif.)
Viet Nam, Socialist Republic of		29 Sep 1987 (access )
Yugoslavia	27 May 1987	8 Feb 1989 (ratif )
Zaire	30 Sep. 1986	
Zimbabwe	26 Sep 1986	
World Health Organization*		10 Aug. 1988 (access )

**CONVENTION ON ASSISTANCE IN THE CASE OF A NUCLEAR ACCIDENT  
OR RADIOLOGICAL EMERGENCY**

**Status of signatures, ratifications, acceptances, approvals or accessions**

<u>State/Organisation</u>	<u>Date of signature</u>	<u>Date of deposit of instrument</u>
Afghanistan*	26 Sep 1986	
Algeria*	24 Sep 1987	
Australia*	26 Sep 1986	22 Sep 1987 (ratif )
Austria	26 Sep 1986	

\* Reservation/declaration deposited upon or following signature/ratification.

<u>State/Organisation</u>	<u>Date of signature</u>	<u>Date of deposit of instrument</u>
Bangladesh		7 Jan 1988 (access )
Belgium	26 Sep 1986	
Brazil	26 Sep 1986	
Bulgaria*	26 Sep. 1986	24 Feb 1988 (ratif )
Byelorussian Soviet Socialist Republic*	26 Sep 1986	26 Jan 1987 (ratif )
Cameroon	25 Sep 1987	
Canada*	26 Sep. 1986	
Chile	26 Sep. 1986	
China*	26 Sep. 1986	10 Sep 1987 (ratif )
Costa Rica	26 Sep 1986	
Côte d'Ivoire	26 Sep. 1986	
Cuba*	26 Sep 1986	
Cyprus		4 Jan 1989 (access )
Czechoslovakia*	26 Sep. 1986	4 Aug. 1988 (ratif )
Democratic People's Republic of Korea*	29 Sep. 1986	
Denmark	26 Sep 1986	
Egypt*	26 Sep. 1986	17 Oct 1988 (ratif )
Finland	26 Sep. 1986	
France*	26 Sep 1986	6 Mar. 1989 (approv )
German Democratic Republic*	26 Sep 1986	29 Apr 1987 (ratif )
Germany, Federal Republic of*	26 Sep 1986	
Greece*	26 Sep 1986	
Guatemala	26 Sep. 1986	8 Aug 1988 (ratif )
Holy See	26 Sep 1986	
Hungary*	26 Sep. 1986	10 Mar 1987 (ratif )
Iceland	26 Sep. 1986	
India*	29 Sep. 1986	28 Jan 1988 (ratif )
Indonesia*	26 Sep. 1986	
Iran, Islamic Republic of	26 Sep. 1986	
Iraq*	12 Aug 1987	21 Jul 1988 (ratif )
Ireland*	26 Sep. 1986	
Israel	26 Sep. 1986	
Italy	26 Sep. 1986	
Japan*	6 Mar. 1987	9 Jun 1987 (accept )
Jordan	2 Oct 1986	11 Dec 1987 (ratif )
Lebanon	26 Sep. 1986	
Liechtenstein	26 Sep. 1986	
Malaysia*	1 Sep. 1987	1 Sep 1987 (on sign )
Mali	2 Oct. 1986	
Mexico	26 Sep 1986	10 May 1988 (ratif )
Monaco	26 Sep 1986	
Mongolia*	8 Jan 1987	11 Jun 1987 (ratif )
Morocco	26 Sep. 1986	
Netherlands*	26 Sep. 1986	
New Zealand*		11 Mar 1987 (access )

<u>State/Organisation</u>	<u>Date of signature</u>	<u>Date of deposit of instrument</u>
Niger	26 Sep 1986	
Nigeria	21 Jan 1987	
Norway*	26 Sep 1986	26 Sep. 1986 (on sign )
Panama	26 Sep. 1986	
Paraguay	2 Oct 1986	
Poland*	26 Sep. 1986	24 Mar 1988 (ratif )
Portugal	26 Sep 1986	
Senegal	15 Jun. 1987	
Sierra Leone	25 Mar 1987	
South Africa*	10 Aug 1987	10 Aug 1987 (ratif.)
Spain	26 Sep. 1986	
Sudan	26 Sep 1986	
Sweden	26 Sep 1986	
Switzerland	26 Sep 1986	31 May 1988 (ratif )
Syrian Arab Republic	2 Jul 1987	
Thailand*	25 Sep 1987	21 Mar 1989 (ratif.)
Tunisia	24 Feb 1987	24 Feb 1989 (ratif )
Turkey*	26 Sep 1986	
Ukrainian Soviet Socialist Republic*	26 Sep. 1986	26 Jan. 1987 (ratif.)
Union of Soviet Socialist Republics*	26 Sep. 1986	23 Dec 1986 (ratif.)
United Arab Emirates		2 Oct 1987 (access.)
United Kingdom of Great Britain and Northern Ireland*	26 Sep 1986	
United States of America*	26 Sep. 1986	19 Sep. 1988 (ratif )
Viet Nam, Socialist Republic of		29 Sep. 1987 (access.)
Zaire	30 Sep 1986	
Zimbabwe	26 Sep 1986	
World Health Organization*		10 Aug. 1988 (access.)

#### STATUS OF EUROPEAN CO-OPERATION ON THE DEVELOPMENT OF FAST BREEDER REACTORS (1989)

A series of Agreements, signed recently in Bonn, lay down the framework for the development of fast breeder reactors in Europe in the years to come. The conclusion of these Agreements provides an occasion to briefly recall the stages to date of European co-operation in research and development in the field of fast breeder reactors

##### the first agreements

Co-operation in this field dates from Spring 1971 when three electricity companies, EDF (France), ENEL (Italy) and RWE (Federal Republic of Germany)

concluded a Convention concerning the construction and operation of two nuclear reactors of the sodium-cooled fast breeder reactor type. That Convention provided for the joint construction of these two reactors, one with French technology and the other with German technology.

The first stage of this co-operation was the establishment of two companies, the first, the Centrale nucléaire européenne a neutrons rapides (NERSA), a company created on 8th July 1974 under French law, was in charge of the construction of the SUPERPHENIX reactor. At the same time, a company was established under German law, the Europäische Schnell-Bruter Kernkraftwerke (ESK) to construct the SNR 2 reactor in the Federal Republic of Germany, the construction of this reactor has been delayed indefinitely.

It should also be noted that the Federal Republic of Germany has constructed, in association with Belgian, Dutch and British partners, an SNR-300 reactor (KALKAR) which is currently in the process of being licensed for operation.

Later, the Ministers of Industry and Research of the Federal Republic of Germany, Belgium, France, Italy and the United Kingdom signed, on 10th January 1984, a Protocol "marking the desire of the European governments to establish long-term co-operation and to join efforts in this field of advanced technology which could be of prime importance for their energy future". In order to stimulate industrial co-operation in this field, a grouping of economic interest (ARGO) was created by various research and development bodies and engineering companies. The objective of this co-operation was to develop a European fast breeder reactor model which could be licensed to operate in each of the participating countries (European Fast Reactor - EFR). In August 1987, an association of European electricity companies under the name European Fast Reactor Utilities Group (EFRUG) invited construction companies to propose a reactor project of this type. The engineering companies involved are Interatom (Federal Republic of Germany), Novatome (France) and the National Nuclear Corporation Limited - NNC (United Kingdom). The European electricity companies constituting EFRUG are CEGB (United Kingdom), EDF (France), ENEL (Italy), Preussen Elektra (Federal Republic of Germany), Electro-nucléaire (Belgium) and Schnell-Bruter Kernkraftwerksgesellschaft - SBK (a company with German, Belgian and Dutch interests).

#### The 1989 Agreements

These Agreements, signed in Bonn on 16th February 1989, are on three levels:

A research and development Agreement establishes the type and the scope of research to be undertaken in the fast breeder field. The Parties to this Agreement are the Karlsruhe Centre for Nuclear Research - KFK (Federal Republic of Germany), Interatom GmbH (Federal Republic of Germany), the Commissariat à l'Énergie Atomique (France) and the United Kingdom Atomic Energy Authority - UKAEA. The ENEA (Italy) and the Centre for Nuclear Studies - CEN/SCK (Belgium) have reserved the option of participating in this Agreement. The Institute ECN of Petten (Netherlands) is also associated with this Agreement.

An industrial Agreement covers co-operation between construction companies and engineering companies involved in the design of the EFR (European Fast Breeder Reactor) The Parties to this Agreement are ENB, a grouping of Interatom, Belgo-nucleaire and Neratoom (Netherlands), Ansaldo (Italy), Novatome (France) and the National Nuclear Corporation Limited - NNC (United Kingdom)

An Agreement, known as the SERENA/FASTEC Agreement deals with the transfer of technology and the licensing regime SERENA is the European company for the promotion of sodium-cooled fast breeder reactors which has French-German shareholders FASTEC is the British equivalent of SERENA; it is owned by the NNC and the UKAEA SERENA and FASTEC are the two European groupings established to ensure the commercialisation of the studies dedicated to the development of fast breeder reactors. The SERNEA/FASTEC Agreement provides for the exchange of knowledge between the two partners and their financial participation in licences granted to third parties

## ● Finland

### **NUCLEAR ENERGY DECREE\* of 12th February 1988**

#### Extracts

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#### **CHAPTER 12**

#### **Nuclear waste management**

##### Section 74

To fulfil the intent stipulated in Section 28 of the Nuclear Energy Act, a licence-holder with a waste management obligation shall each calendar year, by the end of September, submit the following plans and reports on his nuclear waste management measures to the authority\*\* referred to in the said Section:

- 1) a plan on how the licence-holder with a waste management obligation has planned to carry out the nuclear waste management measures and their preparation; the plan shall include at least the following parts:
  - a) an overall plan for carrying out the licence-holder's entire nuclear waste management obligation, with the relevant timetables and specifications, including the necessary preparations and research and the administrative arrangements and other duties required by the waste management obligation;
  - b) a detailed plan on the measures that the licence-holder intends to undertake during the next calendar year, and

\* Unofficial translation by the Finnish authorities

\*\* Ministry of Trade and Industry or the Finnish Centre for Radiation and Nuclear Safety (the Editor).



- c) an outline plan for the measures that the licence-holder plans to undertake in the course of the next five years;
- 2) a description of the agreements and other arrangements that the licence-holder has made to arrange nuclear waste management, and
- 3) any other information considered necessary by the authorities.

The authority mentioned in Section 28 of the Nuclear Energy Act can require that the licence-holder draw up a plan on the matters referred to above in point 1 of subsection 1 at other times, too, when this is deemed necessary. If some significant changes take place in nuclear waste management, the licence-holder must notify the said authority thereof without delay.

#### Section 75

When the nuclear waste management obligation includes the decommissioning of a nuclear facility or the cessation of mining or enrichment operations, the nuclear waste management plan submitted by the licence-holder in accordance with Section 74 shall contain the following information:

- 1) the method and timetable of the decommissioning or cessation of operations,
- 2) storage of the nuclear waste resulting from the decommissioning or cessation of operations before disposal, and a description of the disposal, and
- 3) any other information considered necessary by the authorities

#### Section 76

When a decision is made on the principles that form the basis for the waste management obligation, the decision must be based on the premise that the nuclear waste can be transferred beyond Finland's jurisdiction for good or that it can be placed into Finnish ground or bedrock. The transfer beyond Finland's jurisdiction can be accepted if there exists a binding agreement on the transfer and this agreement can be considered viable from the point of view of nuclear waste management, taking account of the timetable of its execution and other conditions. The decision must set a deadline for the nuclear waste management measures to be taken.

#### Section 77

In addition, the licence-holder with a waste management obligation shall each calendar year, by the end of March, submit a report to the authority referred to in Section 28 of the Nuclear Energy Act on the measures he has completed.

### Section 78

The Ministry of Trade and Industry must obtain a statement from the Finnish Centre for Radiation and Nuclear Safety on the plans and reports described in Sections 74 and 75.

### Section 79

The authority mentioned in Section 28 of the Nuclear Energy Act can exempt a licence-holder with a waste management obligation from submitting the plans and reports referred to above in Section 74, subsection 1, and Section 77 each calendar year if they are not necessary from the point of view of the control of nuclear waste management.

### Section 80

Before giving the order referred to in Section 29 of the Nuclear Energy Act, the Ministry of Trade and Industry must obtain a statement from the Finnish Centre for Radiation and Nuclear Safety on the effect of mandatory waste management co-operation on the safety of nuclear waste management

Before giving the order referred to in subsection 1, the Ministry of Trade and Industry must hear the parties of the waste management co-operation, unless the giving of the order is based on their application

The decision of the Ministry of Trade and Industry in which various licence-holders with waste management obligations are ordered to undertake waste management measures jointly must contain at least the following information:

- 1) what nuclear wastes and waste management measures are included in the co-operation and how is it to be arranged;
- 2) distribution of the costs incurred by the nuclear waste management between the licence-holders; and
- 3) when will the joint nuclear waste management expire

### Section 81

An application for the transfer of a waste management obligation, as referred to in Section 30 of the Nuclear Energy Act, must be submitted to the Ministry of Trade and Industry for decision together with the application for the transfer of a nuclear facility, a mine or enrichment plant intended for the production of uranium or thorium, or nuclear waste to another party

The application must be made jointly by the transferor and the transferee

## Section 82

In applying for the licences referred to in Section 81, the licence-holder with a waste management obligation must show how the financial provision as per Chapter 7 of the Nuclear Energy Act will be arranged with respect to the management obligation that is transferred to the transferee, and present plans on how the management of the nuclear waste that is transferred to the transferee will be carried out in accordance with the stipulations of the Nuclear Energy Act and this decree

The decisions on the applications referred to above in subsection 1 of Section 81 shall be given at the same time

## Section 83

The decision referred to in Section 30 of the Nuclear Energy Act must contain a provision stating that the decision will not become effective unless financial provision for the cost of nuclear waste management has been arranged in the way described in Chapter 7 of the Nuclear Energy Act

## Section 84

A licence-holder with a waste management obligation must apply for an order, referred to in Section 32 of the Nuclear Energy Act, on the expiry of his waste management obligation after the measures mentioned in the said Section have been completed

If the decision on the waste management obligation is given by the Ministry of Trade and Industry, the Finnish Centre for Radiation and Nuclear Safety must, on request, give a certificate of the completion of disposal for the application referred to in subsection 1

The application can be submitted at the same time as the application for the transfer of waste management obligation

## Section 85

The Finnish Centre for Radiation and Nuclear Safety must report the disposal site of nuclear wastes and the prohibition on measures, referred to in Section 63, subsection 1, point 6 of the Nuclear Energy Act, so that they can be entered in the real estate register, land register or list of titles

## **CHAPTER 13**

### **Final provision for the cost of nuclear waste management**

## Section 86

The provision by the licence-holder with a waste management obligation shall be founded on a waste management scheme and on the calculations of waste

management costs which are based on that scheme. The licence-holder with a waste management obligation shall draw up a proposal for the waste management scheme and for the calculation based on it

#### Section 87

The waste management scheme shall present all the measures that are called for by waste management and describe them in sufficient detail for the calculation of the assessed liability. The plans described in the scheme must be modified and revised in line with technological and other developments

#### Section 88

The licence-holder with a waste management obligation shall submit the waste management scheme to the Ministry of Trade and Industry for approval for the first time early enough before beginning the operations that produce nuclear waste, and at the latest in connection with the licence application for these operations

The licence-holder with a waste management obligation must later annually supplement the approved waste management scheme and the associated calculations and, for the estimation of the assessed liability at the end of the calendar year, the Fund target in the next calendar year, and the assessed liability at the end of the next calendar year, submit the following documents to the Ministry of Trade and Industry each calendar year, by the end of September: the revised and supplemented waste management scheme, information on the costs and prices of waste management measures, information on the amounts of nuclear waste included in the waste management obligation and on the necessary waste management measures, and the resultant calculation of the total costs of nuclear waste management at the above-mentioned times

For the confirmation of the assessed liability as at the end of the previous calendar year and the Fund target for the current year, the licence-holder with a waste management obligation must supplement the reports stipulated in subsection 2 with the final data for the previous calendar year and submit them to the Ministry of Trade and Industry by January 10

#### Section 89

By the end of January, the Ministry of Trade and Industry confirms the licence-holder's assessed liability as at the end of the previous calendar year and Fund target for the current calendar year and makes a decision on an estimate of the assessed liability as at the end of the current calendar year

#### Section 90

Before approving the waste management scheme referred to in Section 86, the Ministry of Trade and Industry must obtain a statement from the Finnish Centre for Radiation and Nuclear Safety on factors relating to the safety of the measures presented in the waste management scheme

Before confirming the assessed liability referred to in Section 43, subsection 2 of the Nuclear Energy Act, the Ministry of Trade and Industry must obtain a confirmation from the Finnish Centre for Radiation and Nuclear Safety on the amounts of nuclear waste included in the waste management obligation and on the necessary waste management measures, as referred to above in Section 88

#### Section 91

The licence-holder with a waste management obligation must submit his proposal for the securities to be supplied by virtue of Section 45 of the Nuclear Energy Act to the Ministry of Trade and Industry and make an application to the Council of State for the approval of the security defined in Section 45, subsection 1, point 3 of the Nuclear Energy Act by the end of March

#### Section 92

If the proposed security, referred to in Section 45, subsection 1, point 3 of the Nuclear Energy Act, is a real estate mortgage, the application for its approval must be supplemented with the following information

- 1) a description of the title to the real estate,
- 2) a description of the debts and fees that the real estate is responsible for, including a right of lien on the unpaid purchase price,
- 3) an extract from the real estate or land register or from the list of titles;
- 4) a map showing the location and buildings of the real estate;
- 5) a description of the intended use of the real estate and the town plan of the area;
- 6) a reliable estimate of the probable transfer price of the real estate;
- 7) a written pledge given by the owner of the real estate, and
- 8) any other information required separately

#### Section 93

If the proposed security, referred to in Section 45, subsection 1, point 3 of the Nuclear Energy Act, is a direct liability guarantee by a Finnish association, the application for its approval must be supplemented with the following information on the guarantor

- 1) an extract from the trade register or a corresponding register extract;
- 2) a copy of the articles of association or rules,

- 3) a list of shareholders or some other description of the owners of the association,
- 4) the financial statements of the association for the last five years,
- 5) a written consent to guarantee given by the association, and
- 6) any other information required separately

#### Section 94

A real estate mortgage that has been confirmed on a nuclear facility property cannot be accepted as a security referred to in Section 45, subsection 1, point 3 of the Nuclear Energy Act

A real estate mortgage that is used as a security cannot exceed three-fourths of the probable transfer price of the real estate

#### Section 95

By the end of June, the licence-holder with a waste management obligation shall supply the securities referred to in Section 45 of the Nuclear Energy Act to the Finnish State Treasury

#### Section 96

The Ministry of Trade and Industry must annually examine the securities referred to in Section 45 of the Nuclear Energy Act and estimate whether their security value can still be considered sufficient. If necessary, the Ministry must take the matter to the Council of State for decision

If the security can no longer be considered sufficient, the Ministry of Trade and Industry has the right to demand a supplementary security or a new security and to set a deadline by which such security is to be supplied

#### Section 97

The Ministry of Trade and Industry has the right to determine the order in which the securities referred to in Section 45 of the Nuclear Energy Act are converted into money

If securities are returned to the licence-holder with a waste management obligation, the Ministry of Trade and Industry has the right, after hearing the licence-holder, to determine which securities are returned in each case and in which order they are returned

### Section 98

The regulations in Chapter 7 of the Nuclear Energy Act are not applied to a licence-holder with a waste management obligation if the Ministry of Trade and Industry estimates that the future costs induced by the management of the nuclear waste that is or will be produced as a result of his operations will be no more than FIM 200 000

## CHAPTER 14

### Capital of the State Nuclear Waste Management Fund

### Section 99

The licence-holder with a waste management obligation must notify the State Nuclear Waste Management Fund by the end of February how much he or his shareholder wishes to borrow from the Fund contribution referred to in Section 42, subsection 1 of the Nuclear Energy Act

The licence-holder with a waste management obligation or a shareholder of the licence-holder must notify the State Nuclear Waste Management Fund by the end of December how much he wishes to borrow from the amount that can be lent on the last day of the following January

### Section 100

The licence-holder with a waste management obligation or a shareholder of the licence-holder must supplement the notification referred to in Section 99 with the following documents or reports

- 1) the application for a loan,
- 2) the amount and period of the loan that is applied for;
- 3) a proposal for securities;
- 4) when the loan is applied for by a shareholder of the licence-holder, proof that the applicant is a shareholder, and
- 5) any other information considered necessary by the State Nuclear Waste Management Fund.

### Section 101

The decision on the granting of the loan referred to in Section 52, subsection 1 of the Nuclear Energy Act is made by the State Nuclear Waste Management Fund.

If the licence-holder with a waste management obligation or his shareholder has failed to pay an overdue loan or loan interest to the State

Nuclear Waste Management Fund, this licence-holder or shareholder cannot be granted a loan from the State Nuclear Waste Management Fund until he has paid the overdue loan or interest

#### Section 102

Before the State Nuclear Waste Management Fund transfers capital to the State finances pursuant to Section 52, subsection 2 of the Nuclear Energy Act, an allocation must be made for the management of the Fund administration

In case the State Nuclear Waste Management Fund receives contributions that can be lent to a licence-holder with a waste management obligation or to a shareholder of the licence-holder pursuant to subsection 1, the Fund must lend them as soon as possible

#### Section 103

In case the State Nuclear Waste Management Fund transfers capital to the State finances, the agreement that is made on the transfer of the capital shall include a provision stating that the State budget can contain an appropriation for the return of the transferred capital back to the Fund before the end of the fixed period if it is necessary for the fulfilment of the obligations set for the Fund in Chapter 7 of the Nuclear Energy Act

#### Section 104

Each year the Ministry of Trade and Industry must prepare an estimate for the State Nuclear Waste Management Fund of the assessed liabilities and Fund targets of all licence-holders with waste management obligations for the next six years.

#### Section 105

The State Nuclear Waste Management Fund must see to it that the security value of the securities referred to in Section 52, subsection 1 of the Nuclear Energy Act can still be considered sufficient

If the security can no longer be considered sufficient, the State Nuclear Waste Management Fund has the right to demand a supplementary security or a new security and to set a deadline by which such security is to be supplied

#### Section 106

The State Nuclear Waste Management Fund has the right to determine the order in which the securities referred to in Section 52, subsection 1 of the Nuclear Energy Act are converted into money





# BIBLIOGRAPHY AND CURRENT EVENTS

## BIBLIOGRAPHY

### ● *Federal Republic of Germany*

Kernenergierechtsprechung in Leitsätzen, by Dietrich Rauschnig and Dirk Siegmann, Nomos Publishing Company, Baden-Baden, 1988, 483 pages

In the Federal Republic of Germany the erection and the operation of nuclear power plants and of other major nuclear facilities have been, in nearly all cases, subject to one or more lawsuits. The courts thus influenced considerably the development of German nuclear law. Since 1972 so many court decisions were issued, that it has been very difficult for lawyers to keep up-to-date. The authors - both of them from the Institute for Public International Law of Göttingen University - thoroughly reviewed 226 court decisions and concentrated the essence of the decisions in 2 062 "Leitsätze" (short notes) which provide a reliable guide of the courts' ruling. 112 systematic classifications, a list of all decisions referred to and indicating where the decisions are published, provide an indispensable tool for those dealing with German nuclear law. The decisions cited in the book are available at the Göttingen Public International Law Institute.

### ● *United Kingdom*

Nuclear Energy and Insurance, by James C Dow, Witherby & Co , Ltd , London, 1989, 465 pages

In the foreword to this book, the Chairman of the insurance company Lloyd's suggests that 'the thought of writing a book on "Nuclear Energy and

Insurance" would fill most people with horror' Whether or not this is so, the author has succeeded in producing a work which deals comprehensively with this subject. It provides a useful reference for an expert in this field and at the same time presents a thoroughly readable text for the interested layperson. The readability of this book is due in part to the fact it sets the subject of nuclear insurance in its wider context.

The author explains the basic concepts of atomic theory, current uses of nuclear energy, the legal framework, both national and international, to which nuclear activities are subject and the background to the development of current approaches to the insurance of nuclear risks.

Part I provides the scientific and technological context of the various applications of atomic energy.

Part II of the book then moves on to address the legal framework applicable to this technology. Again this is placed in its historical context. Chapter IV focuses on international legal obligations and, in particular, the Paris and Vienna Conventions and the Brussels Supplementary Convention, giving a detailed analysis of the provisions of these Conventions. Other relevant Conventions, including the recent IAEA Notification and Assistance Conventions, are also described. Chapter V supplements this by analysing the nuclear legislation of the United Kingdom, the United States, Japan, Switzerland and the Federal Republic of Germany.

Having provided a picture of nuclear energy uses and the legal framework regulating them, Part III, the most substantial Part of the book, addresses the issue of insurance itself. It describes in detail the development of the current approach to nuclear insurance, the risks covered and national pool arrangements, including re-insurance between them. It also explains how the risks insured are analysed and assessed. Finally, nuclear insurance policies themselves are then described. Material damage insurance, machinery breakdown insurance, all risks insurance, consequential loss insurance, third party liability insurance and products liability insurance are addressed. The author points out that these policies are not new types of policies but are in fact based on related conventional insurance policies, for example nuclear third party liability policies are based on conventional third party liability policies. Accordingly the description of these policies emphasizes how these basic policy models have been extended to address the special perils or liabilities which are to be insured partly by incorporating some special conditions, restrictions and exclusions.

## ● NEA

Paris Convention on Third Party Liability in the Field of Nuclear Energy and Brussels Convention Supplementary to the Paris Convention, OECD/NEA, Paris, 1989, 82 pages

The previous publication in English and French of the 1960 Paris Convention contained only the text of the Convention and its Exposé des

**Motifs** This new bilingual edition also reproduces the text of the 1963 Brussels Supplementary Convention. Both Conventions were twice amended by Protocols to each of them, adopted in 1964 and in 1982 respectively. The texts in this edition incorporate the provisions of the 1982 Protocols amending the Conventions, also, the text of the Expose des Motifs is reproduced as revised in 1982. Readers may keep an up-to-date record of the status of the Conventions by progressively completing the tables provided for this purpose at the end of the publication.

This publication may be obtained free of charge from the OECD Publications Office or OECD Sales Agents throughout the world.

International Nuclear Third Party Liability NEA Issue Brief No 4, March 1989, OECD, Paris, 4 pages

This brochure, also available in French, is the fourth in a new NEA series, the NEA Issue Brief series, which aims to provide overviews of various nuclear energy issues in a concise and readable format. It outlines both the current legal framework governing international nuclear third party liability and current issues in this field. The Brief begins by explaining the underlying principles and basic provisions of the Conventions governing nuclear third party liability, namely the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy, the 1963 Brussels Convention Supplementary to the Paris Convention, the 1963 Vienna Convention on Civil Liability for Nuclear Damage and the 1971 Brussels Convention Relating to Civil Liability in the Field of Maritime Carriage of Nuclear Material. It then covers the recent Joint Protocol Relating to the Application of the Paris and Vienna Conventions, outlining its purpose and general operation. Finally, the Brief highlights issues which are currently topical - the need to increase the number of Parties to the Conventions, the limitation of the financial liability of the nuclear operator and the types of damage which are covered by the Conventions. The Brief should provide a useful introduction to the international nuclear third party liability regimes for all persons having an interest in this field.

The Brief may be obtained free of charge from the OECD/NEA Secretariat.

# CURRENT EVENTS

## • *INLA*

The International Nuclear Law Association (INLA) will hold Nuclear Inter Jura'89 from 25th-28th September this year in Tokyo, Japan. This is the ninth of the biennial INLA Congresses. The theme of the Congress will be "Nuclear Law for the 1990s". The programme covers nuclear third party liability, licensing of nuclear installations and their decommissioning, radioactive waste management, nuclear trade and radiation protection.

The Congress is being organised by the Japan Energy Law Institute. Further information may be obtained by writing to Secretariat, Nuclear Inter Jura'89, Japan Energy Law Institute, No. 2 Fukide Building, 4-1-21, Toranomon, Minato-ku, Tokyo 105 Japan, Fax 81-3-434-7703; Telex: J33584 SAN INTL; Telephone: 81-3-433-1560



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# ● *Poland* ●

## ATOMIC ENERGY ACT No. 70

of 10th APRIL 1986\*

Recognising the need in all sectors to develop nuclear energy for peaceful purposes in the process of Poland's economic development, and with a view to protecting the life, health and property of its citizens, as well as the environment, against the hazards involved in developing this form of energy, it is provided as follows:

### Part 1

#### General provisions

##### Section 1

1. This Act regulates the activities related to the development of nuclear power for the socio-economic needs of Poland, defines the obligations of the organisational units [jednostki organizacyjne] carrying on these activities, the competent bodies in this sphere and their tasks, the principles of third party liability for nuclear damage and liability for breaches of rules on nuclear safety and radiation protection.

2. Activities related to the development of nuclear power for Poland's socio-economic needs include in particular:

1) the manufacture, conversion, application, storage and transport of nuclear materials and sources of ionizing radiation, as well as trade in such materials and sources;

2) site selection, the preparation of plans, the construction, start-up, operation and decommissioning of nuclear installations;

\* Legal Gazette of the Polish People's Republic, Warsaw, 22nd April 1986, No. 12.

Unofficial translation by the Secretariat.

- 3) the safe conditioning and storage of radioactive waste;
- 4) the protection of the health of workers employed in nuclear installations on work involving nuclear materials, sources of ionizing radiation and radioactive waste, as well as the training of such workers.

## Section 2

The development of nuclear power for Poland's socio-economic needs must be accompanied by the measures required to guarantee safety and the protection of human life, health and property, and of the environment.

## Section 3

The following terms shall, for the purposes of this Act, be defined as follows:

- 1) nuclear materials: materials containing fissile nuclides or nuclides which could become fissile following nuclear reactions, and in particular isotopes of uranium, plutonium and thorium;
- 2) nuclear installations: installations or devices in which nuclear materials are manufactured, applied, converted, stored or transported in sufficient quantities to allow a self-sustained fission reaction;
- 3) ionizing radiation: radiation consisting of directly or indirectly ionizing particles, or of both categories, but excluding ultraviolet radiation photons;
- 4) radioactive sources: radioactive substances so prepared as to allow use to be made of the ionizing radiation they emit;
- 5) sources of ionizing radiation: radioactive sources or devices emitting ionizing radiation;
- 6) radioactive waste: objects or solid, liquid or gaseous materials containing radioactive substances, or contaminated by such substances beyond the statutory threshold and whose subsequent use serves no purpose or is impossible;
- 7) nuclear safety: the state in which, during the normal operation of a nuclear installation and on the appearance of any disturbances, the limits of exposure to ionizing radiation laid down by law for persons working in nuclear installations and for other persons, will not be exceeded;
- 8) radiation protection: the prevention of the exposure of persons and the environment to ionizing radiation and, should this prove

impossible, the restriction as far as possible of the consequences of such exposure;

- 9) nuclear damage: damage caused to persons or property, or to the environment, by the radioactive, toxic, explosive or other effects of nuclear materials and their fission products;
- 10) operator: for the purposes of third party liability, the organisational unit carrying on the activities referred to in Section 4;
- 11) dose limit (dose equivalent limit); maximum dose of ionizing radiation prescribed for particular groups of persons, which may not be exceeded except as otherwise provided in this Act;
- 12) physical protection: all organisational and technical measures taken to ensure the effective protection of nuclear materials from diversion, sabotage, theft or other harmful acts.

#### Section 4

1. A licence from the competent nuclear safety and radiation protection authority is required for carrying on activities related to the development of nuclear power, namely:

- 1) the production, conversion, storage, transport or use of, and trade in nuclear materials and radioactive sources and waste;
- 2) the construction, start-up, operation or decommissioning of nuclear installations;
- 3) the construction and operation of radioactive waste repositories;
- 4) the manufacture and use of devices incorporating radioactive sources;
- 5) the manufacture and use of devices emitting ionizing radiation;
- 6) the manufacture of dosimetry equipment, and equipment and devices for protection against ionizing radiation;
- 7) the opening of laboratories and other premises in which sources of ionizing radiation are to be used;
- 8) the manufacture of everyday articles emitting ionizing radiation;
- 9) the operation of devices, installations and processes of importance from the nuclear safety and radiation protection viewpoint.

2. The licensing body may at any time withdraw or modify a licence if the nuclear safety and radiation protection requirements or conditions have not been met.

3. The Council of Ministers [Rada Ministrow] may pass regulations defining:

- 1) the conditions for granting the licences referred to in paragraph 1;
- 2) the activities related to the development of nuclear power, other than those listed in paragraph 1, which require a licence.

4. The Chairman of the National Atomic Energy Agency [Agencja Panstowa Atomistyki], hereinafter referred to as the "Chairman of the Agency", shall define in detail the nuclear safety and radiation protection requirements and conditions.

#### Section 5

Nuclear materials and radioactive sources shall be registered and monitored; nuclear materials shall also be subject to physical protection.

#### Section 6

1. The import into, export out of and transit through the Polish People's Republic of nuclear materials, radioactive sources and devices incorporating such sources shall be carried out in accordance with the conditions laid down by the Chairman of the Agency, in agreement with the Minister for Communications [Minister Komunikacji] and the Minister for Foreign Trade [Minister Handlu Zagranicznego].

2. A licence of the type referred to in Section 4 shall be required for the import and export of nuclear materials, radioactive sources and devices incorporating such sources, as well as for the import of everyday articles emitting ionizing radiation.

#### Section 7

1. Any activity involving exposure to ionizing radiation shall be conducted in such a manner that the number of persons exposed is as low as possible and that the doses of radiation received by such persons are as low as possible and do not exceed the dose limits.

2. Dose limits shall be established:

- 1) for persons employed in conditions in which they are exposed to ionizing radiation;
- 2) for persons living in or visiting the neighbourhood of sources of ionizing radiation, and for persons exposed to the effects of such radiation due to radioactive contamination of the environment;
- 3) for persons exposed to the effects of ionizing radiation following use of everyday articles emitting such radiation.

3. The establishment of a dose limit shall not affect the obligation to limit actual doses of ionizing radiation to as low a level as possible.

#### Section 8

1. Dose limits shall cover the total radiation from sources of ionizing radiation inside and outside the body.

2. Dose limits shall not cover radiation of cosmic origin or from natural radioactive elements present in the environment in their natural state or in living organisms in normal physiological conditions.

#### Section 9

1. In cases of obvious need, for the prevention of accidents or to restrict or eliminate their consequences, the head of the establishment, or a person appointed by him, may order a male worker to perform tasks which could involve his receiving an annual radiation dose in excess of the annual dose limit, but which may not exceed five times the annual dose limit; the worker concerned may not refuse to carry out such an order.

2. However, as in other cases, any exposure of a worker as described in paragraph 1, above, must be so restricted that the cumulative dose over any period of 6 consecutive years, including the year of increased exposure, does not exceed six times the annual dose limit.

3. The exposure of a worker during a given year to a dose in excess of two times the annual dose limit shall be permissible only if the worker concerned has never before, during a twelve-month period, received a dose in excess of twice the annual dose limit.

#### Section 10

1. If necessary to save human life, a person taking part in a rescue operation may be authorised by the person directing the operation to expose himself to ionizing radiation without a maximum dose limit, if that person has volunteered and was first informed of the radiation hazard involved and of the consequences it could have for his life or health.

2. The provisions of Article 127, paragraph 2 of the Civil Code shall apply mutatis mutandis to liability for any damage suffered by the person referred to in paragraph 1, above.

#### Section 11

The dose limits shall not apply to persons exposed to the effects of ionizing radiation for medical purposes.

## Section 12

1. Decisions taken by administrative bodies may not adversely affect nuclear safety or radiation protection requirements.
2. Any decision in breach of the provisions of paragraph 1, above, shall be null and void.

## Section 13

1. The Minister for Health and Welfare [Minister Zdrowia i Opieki Społecznej] shall enact regulations laying down the conditions for the safe application of ionizing radiation for medical purposes.
2. The Chairman of the Agency shall, in agreement with the Minister for Health and Welfare, establish the dose limits for ionizing radiation and the derived indicators defining the risk, including the permissible emission of ionizing radiation by everyday articles.

## Part 2

### Nuclear installations

## Section 14

1. Nuclear installations shall include, in particular:
  - 1) nuclear power plants producing electricity or heat or both;
  - 2) establishments using nuclear reactors as a source of thermal energy or radiation for technological purposes;
  - 3) establishments for producing, converting and storing nuclear materials;
  - 4) nuclear reactors used for research and experimentation.
2. Installations or establishments are classified as nuclear installations on the basis of a decision by the Chairman of the Agency.

## Section 15

1. The investor shall be responsible for guaranteeing compliance with the nuclear safety and radiation protection requirements affecting a nuclear installation at the planning stage and during construction, start-up and experimental operation, while this responsibility shall be borne by the operator during the normal operating stage and decommissioning.

2. In addition to the investor's obligations, other persons involved in the investment process shall, in accordance with their duties, be responsible for ensuring compliance with nuclear safety and radiation protection requirements.

3. At the stages of site selection, the preparation of plans, construction, start-up and operation of a nuclear installation, the technical and organisational measures must be taken which, in the light of scientific and technological progress, are needed to ensure that, in all phases of operation and in case of breakdown or damage, neither those operating the installation nor other persons or the environment are exposed to risk.

#### Section 16

The body competent to take decisions concerning site selection under planning legislation must, in agreement with the Chairman of the Agency, take nuclear safety and radiation protection requirements into account before giving any indications as to possible sites and before taking any decision in respect of the site of a nuclear installation.

#### Section 17

1. Licences relating to nuclear safety and radiation protection for the construction, start-up, operation and decommissioning of a nuclear installation shall be granted by the Chairman of the Agency, on the request of the investor or operator. Such a licence is a precondition for obtaining a permit to construct, use and dismantle buildings, under building legislation.

2. Licences referred to in paragraph 1, above, may be granted after verification that the nuclear safety and radiation protection requirements and conditions have been met.

#### Section 18

1. A protection zone, subject to land-use restrictions, shall be established around nuclear installations with a view to reducing the risk from radiation.

2. The Chairman of the Agency, in agreement with the Minister for Construction [Minister Budownictwa], the Minister for Town and Country Planning [Minister Gospodarki Przestrzennej i Komunalnej] and the Minister for the Protection of the Environment and Natural Resources [Minister Ochrony Srodowiska i Zasobow Naturalnych], shall establish the detailed rules governing the creation and administration of the protection zone around nuclear installations.

#### Section 19

Should nuclear safety be endangered by the operation of any installation, the Chairman of the Agency shall order a reduction in the output

of the installation or order that it be withdrawn from service. The return to full capacity or the bringing back on line of the installation requires the authorisation of the Chairman of the Agency.

### **Part 3**

#### **Nuclear materials**

##### **Section 20**

1. Licences to manufacture, convert, store, make use of and trade in nuclear materials shall be granted by the Chairman of the Agency on the request of the Director of the competent organisational unit.
2. It shall be the responsibility of the Director of an organisational unit, to which a licence referred to in paragraph 1 above has been granted, to ensure that nuclear materials are used in compliance with nuclear safety and radiation protection requirements.

##### **Section 21**

1. Any organisational unit to which a licence referred to in Section 20, paragraph 1, has been granted, shall be obliged to register and monitor its nuclear materials and ensure their physical protection.
2. The Chairman of the Agency, in agreement with the Minister responsible for the Administration of Materials and Fuels [Minister Gospodarki Materialowej i Paliwowej], the Minister of the Interior [Minister Spraw Wewnętrznych], the Minister for Foreign Affairs [Minister Spraw Zagranicznych] and the Minister for Communications, shall establish the rules governing the registration, surveillance and physical protection of nuclear materials.

### **Part 4**

#### **Sources of ionizing radiation**

##### **Section 22**

1. Licences to carry on activities connected with a source of ionizing radiation referred to in Section 4, paragraph 1 (1) and (4) to (9), shall be granted by the Chairman of the Agency or a person appointed by him, on the request of the Director of the competent organisational unit, subject to the provisions of paragraph 2, below.



2. Licences to manufacture, purchase, install and use X-ray apparatus of a capacity equal to or less than 300 keV, shall be granted by the local State Public Health Inspector.

3. The Minister for Health and Welfare shall lay down the conditions which X-ray centres have to meet and the rules governing work involving the use of X-ray equipment.

### Section 23

The Director of an organisational unit to which a licence for the activities referred to in Section 22 has been granted, shall be responsible for ensuring radiation protection in the carrying on of activities connected with a source of ionizing radiation.

### Section 24

1. An organisational unit carrying on activities connected with radioactive sources shall be required to register and monitor these sources.

2. Devices incorporating radioactive sources and emitting ionizing radiation, whether manufactured in Poland or purchased abroad, shall be subject to a radiation protection control before being brought into service.

### Section 25

The Chairman of the Agency shall determine the rules applicable to the registration and control of radioactive sources, as well as the rules governing the control of devices incorporating radioactive sources and emitting ionizing radiation, together with the organisational unit competent to ensure such control.

## **Part 5**

### **Radioactive waste**

### Section 26

1. Radioactive waste from the manufacture, conversion, temporary or longer-term storage or use of nuclear materials and radioactive sources and from the operation and decommissioning of nuclear installations must, subject to the provisions of paragraph 2, below, be conditioned in such a way as to prevent their constituting a risk to persons or the environment.

2. Waste which the Nuclear Inspectorate recognises as not constituting a radiation risk, shall not be classified as radioactive waste.

3. Radioactive waste shall be registered at the place where it is produced and stored on a short or longer-term basis.

4. The Chairman of the Agency shall determine the rules governing the radioactive classification of waste, its characterisation and registration, and the conditions for its treatment and short or longer-term storage.

### Section 27

1. Nuclear safety and radiation protection licences for the construction and operation of radioactive waste repositories shall be granted by the Chairman of the Agency. Such licences are a precondition for obtaining a permit to construct and use buildings under building legislation.

2. The Director of an organisational unit to which a licence to operate a radioactive waste repository has been granted shall be responsible for ensuring that waste is stored in compliance with nuclear safety and radiation protection requirements.

### Section 28

The Director of the organisational unit concerned shall be responsible for ensuring that the on-site management of radioactive waste and its preparation for transport and storage off-site comply with nuclear safety and radiation protection requirements.

## Part 6

### Transport of nuclear materials and radioactive sources and waste

#### Section 29

1. Nuclear materials have to be prepared for transport and must be transported in such a way as to prevent any possibility of a self-sustained fission reaction.

2. Licences to transport nuclear materials and radioactive sources and waste shall be granted by the Chairman of the Agency or a person appointed by him.

#### Section 30

1. Insofar as they are not regulated by separate provisions, the conditions for the safe transport of nuclear materials and radioactive sources and waste shall be determined by the Minister competent for the mode of transport in question, in agreement with the Minister of the Interior and the Chairman of the Agency.

2. Account should be taken, when preparing the transport of nuclear materials and radioactive sources and waste as well as during such transport, of the risks constituted by the physical and chemical properties of such materials, sources and waste, and the mandatory requirements and conditions for the transport of hazardous materials should be respected.

3. The radiation to which persons involved in the transport operation, including those responsible for loading and unloading the nuclear materials and radioactive sources and waste transported, are exposed, shall be monitored and must not exceed the dose limits referred to in Section 7, paragraph 2 (2). These requirements shall not apply to persons recruited as persons occupationally exposed to ionizing radiation.

### Section 31

1. The provisions of Sections 29 and 30 shall not apply to transport within the site of organisational units which produce, store or use nuclear materials or radioactive sources and waste.

2. The transport requirements and conditions referred to in paragraph 1, above, shall be specified by the Chairman of the Agency in the licence granted pursuant to Section 17, paragraph 1, Section 20, paragraph 1 and Section 22, paragraph 1.

## Part 7

### Training and protection of workers

### Section 32

1. A worker may be permitted to work with nuclear materials, sources of ionizing radiation or radioactive waste provided he has an adequate knowledge, given his post, of nuclear safety and radiation protection requirements and provided he possesses the necessary skills.

2. Any such worker may be appointed provided the competent public health service finds that there are no special reasons why he should not occupy a post likely to involve exposure to ionizing radiation.

3. Such special reasons, together with the type and frequency of the medical examinations to be given workers assigned to such posts, shall be defined in separate regulations.

4. Organisational units in which nuclear materials or a source of ionizing radiation are used or in which radioactive waste is produced or converted, shall be obliged to draw up a training programme, give workers instruction on nuclear safety and radiation protection before allowing them to commence work, and periodically provide appropriate training.

5. Training programmes drawn up by the organisational units referred to in paragraph 4, above, shall be submitted to the Chairman of the Agency for approval.

### Section 33

1. In organisational units in which nuclear materials or sources of ionizing radiation are used, or in which radioactive waste is converted or stored, as also in nuclear installations, only persons possessing the required skills and who have obtained relevant qualifications after examination, may be assigned to a post which has real importance in respect of ensuring nuclear safety and radiation protection.

2. The Chairman of the Agency shall be responsible for deciding:

- 1) to stop persons without the necessary qualifications from occupying a given post;
- 2) to give a further examination to a worker whose knowledge, skills or performance in relation to a post requiring specific qualifications fail to guarantee that the nuclear safety and radiation protection requirements will be respected.

3. The Chairman of the Agency:

- 1) shall define the types of post referred to in paragraph 1, above, the conditions and method for granting the qualifications conferring entitlement to work with nuclear materials, sources of ionizing radiation or radioactive waste, except for X-ray apparatus with a capacity less than or equal to 300 keV, and also the method of checking the knowledge and skills of persons performing such work;
- 2) shall convene the Examination Board, the composition of which shall be established by him.

4. The Minister for Health and Welfare shall establish the general content and principles of the training programme for persons responsible for ensuring protection against ionizing radiation in X-ray centres.

### Section 34

Organisational units employing workers in conditions likely to involve exposure to ionizing radiation, shall be obliged:

- 1) to ensure that such workers are kept under medical surveillance and are provided with the necessary means of individual protection and dosimetry equipment;
- 2) to record the individual doses received by such workers and systematically take dosimetry readings in the workplace.

### Section 35

The Chairman of the Agency shall determine the standards which dosimetry equipment used for radiation protection must meet, together with the requirements relating to the recording of dosimetry readings.

## Part 8

### Third party liability for nuclear damage

#### Section 36

1. The operator of a nuclear installation shall be solely liable for nuclear damage.
2. When more than one person operates a nuclear installation, they shall be jointly and severally liable.
3. The operator of a nuclear installation shall have a right of recourse against any person intentionally causing nuclear damage if the damage results from intentional fault on his part.

#### Section 37

1. In the event of nuclear damage occurring during the transport of a nuclear package, the operator sending the package shall retain sole third party liability until the package is handed over to the consignee.
2. When nuclear damage occurs during international transport, third party liability shall lie solely with the operator sending the nuclear package or the operator to whom the package was delivered. The moment at which liability passes shall be determined by agreement between the consignor and the consignee. Should the agreement not provide explicitly for this circumstance, the consignor shall retain liability until the nuclear package is handed over to the authorised person at the frontier of the State in which the package is to be delivered.
3. The person liable for nuclear damage shall have a right of recourse against those persons providing transport services if the damage results from intentional fault on their part.

#### Section 38

The operator of a nuclear installation shall not be liable for nuclear damage if the damage results from acts of war or exclusively from an intentional fault on the part of the victim.

### Section 39

1. Liability for all the consequences of an event leading to nuclear damage shall lie with the person obliged to pay compensation.
2. Compensation of nuclear damage shall include:
  - 1) for the victim, losses suffered as a consequence of personal injury or damage to health, or as a result of the destruction or deterioration of property, or, for other persons, losses suffered as a result of the death of the victim;
  - 2) earnings the victim could have made had he not suffered the damage;
  - 3) the essential expenses which have been or will be incurred following the accident, in order to prevent persons and the environment from being exposed to ionizing radiation.
3. The compensation of nuclear damage shall also cover compensation for damage to common property following damage to the environment. When such damage has occurred, the Treasury [Skarb Panstwa] shall be entitled to request compensation. Any compensation obtained shall be paid into the Environmental Protection Fund [Fundusz Ochrony Srodowiska].

### Section 40

1. The operator of a nuclear installation shall be required to take out third party liability insurance against nuclear damage.
2. The Minister of Finance [Minister Finansow] shall establish the amount of security covering the third party liability of nuclear installation operators.
3. Should the nuclear damage suffered by any person exceed the compensation amount provided for by contract, the victim may request payment from the Treasury of the excess amount.
4. The Council of Ministers [Rada Ministrow] shall determine the method of compensating that part of nuclear damage to property and the environment in excess of the compensation amount provided for by contract.

### Section 41

1. There shall be no prescriptive period for the right to compensation of nuclear damage suffered by persons, while the right to compensation of nuclear damage to property or the environment shall be subject to a prescriptive period of ten years from the date on which the accident occurred.
2. The right of recourse, referred to in Section 36, paragraph 3 and Section 37, paragraph 3, shall be subject to a prescriptive period of two years commencing on the date on which compensation was paid.

3. As between public entities [jednostki gospodarki uspołecznionej], the right to compensation of nuclear damage to property or the environment shall be subject to a prescriptive period of ten years commencing from the date on which the accident occurred.

#### Section 42

In areas not covered by the provisions of Sections 36 to 41, the provisions of the Civil Code shall apply to liability for nuclear damage.

#### Section 43

The provisions of Sections 36 to 42 shall not prejudice the provisions on benefits for employment accidents or occupational diseases.

### **Part 9**

#### **National Atomic Energy Agency**

#### Section 44

1. The National Atomic Energy Agency, hereinafter referred to as the "Agency", shall be the government body responsible for matters relating to the development of nuclear power.
2. The Agency shall be answerable to the Chairman of the Council of Ministers.
3. The Chairman of the Council of Ministers may open or close local Agency offices and determine their territorial jurisdiction and principal place of business.

#### Section 45

1. The Agency, headed by a Chairman, shall fulfill the functions of a central government body responsible for matters related to the development of nuclear power.
2. The Chairman of the Council of Ministers shall appoint and terminate the appointment of the Chairman of the Agency.
3. The Chairman of the Council of Ministers, on the proposal of the Chairman of the Agency, shall appoint and terminate the appointment of the Vice-Chairmen of the Agency.

#### Section 46

The activities of the Agency shall include matters concerning:

- 1) the co-ordination and control of activities relating to the safe development of nuclear power;
- 2) research on nuclear power and its applications in the national economy;
- 3) the manufacture of nuclear equipment and devices, and the manufacture of and trade in radioactive sources;
- 4) the conditioning and storage of radioactive waste;
- 5) the registration, control and physical protection of nuclear materials;
- 6) information of the public of government activities in the field of the development of nuclear power;
- 7) co-operation with foreign countries in relation to the use of nuclear power for peaceful purposes.

#### Section 47

The Chairman of the Agency shall be responsible for:

- 1) representing the Agency and directing its work;
- 2) defining the thrust of the activities referred to in section 46, in accordance with Poland's socio-economic needs;
- 3) directing State surveillance of nuclear safety and radiation protection;
- 4) granting licences in matters falling within the jurisdiction of State surveillance of nuclear safety and radiation protection;
- 5) granting licences and taking decisions as provided for under this Act;
- 6) granting licences to persons operating nuclear installations, using sources of ionizing radiation or engaged in converting or storing radioactive waste;
- 7) monitoring and controlling all activities involving or which could involve the exposure of persons or the environment to ionizing radiation;



- 8) initiating, providing for and programming all-embracing activities for the development and promotion of nuclear power for peaceful purposes;
- 9) analysing and evaluating the activities of the organisational units under surveillance and co-ordinating their activities;
- 10) formulating staff policy and providing assistance for the training of managerial staff in matters relating to nuclear power;
- 11) working in collaboration with higher and central government bodies on matters related to the development of nuclear power;
- 12) monitoring the activities of State enterprises and other organisational units in areas defined in separate regulations;
- 13) taking, on the basis and in implementation of legislation, measures in cases falling within the jurisdiction of the Agency and the Chairman thereof, which must be published in the Official Gazette of the Polish People's Republic ["Monitor Polski"].

#### Section 48

1. The Agency shall have a Board of Management [Zarząd Agencji], hereinafter referred to as "the Management Committee", composed of the Vice-Chairmen of the Agency, the Principal Nuclear Inspector, representatives of the Minister of Mines and Energy [Minister Górnictwa i Energetyki], the Minister for Science and Higher Education [Minister Nauki i Szkolnictwa Wzwyżego], the Minister of Defence [Minister Obrony Narodowej], the Minister of the Interior, the Minister for Foreign Affairs, the Minister for Health and Welfare, the Minister for the Protection of the Environment and Natural Resources, the Minister responsible for Materials and Fuels Management, and a representative of the Polish Academy of Sciences [Polska Akademia Nauk].

2. The work of the Management Committee shall be directed by the Chairman of the Agency.

3. The Management Committee shall take decisions on matters relating to the Agency's activities, and shall in particular:

- 1) outline the policy for the development of nuclear power for Poland's the socio-economic needs, and how it should be implemented;
- 2) decide on programmes and plans of action, and examine the annual activity reports relating thereto;
- 3) define the principles for co-operation with foreign countries;
- 4) examine any other questions submitted by the Chairman of the Agency or by the Council of Atomic Affairs [Rada Spraw Atomistyki].

#### Section 49

1. The Agency shall be assisted by the Council for Atomic Affairs, hereinafter referred to as "the Council", which shall act as an advisory body, responsible for giving its opinion on questions relating to the Agency's activities referred to in Section 46.
2. The Chairman of the Council of Ministers, on the proposal of the Chairman of the Agency, shall appoint and terminate the appointment of the Chairman of the Council of Atomic Affairs.
3. The Chairman of the Agency shall appoint and terminate the appointment of the members of the Council.

#### Section 50

1. The Council of Ministers shall specify in detail, by way of regulation, the sphere of activity of the Agency and its Chairman.
2. The Statute of the Agency, adopted by the Council of Ministers, shall specify how the Agency is to be organised, and define the precise activities of the Management Committee and the powers of the local offices.
3. The composition together with the sphere and type of activities of the Council shall be defined in the Statute approved by the Chairman of the Council of Ministers.

### Part 10

#### Government surveillance of nuclear safety and radiation protection

#### Section 51

1. Government surveillance of nuclear safety and radiation protection, hereinafter referred to as "nuclear surveillance", shall consist of monitoring and controlling all activities related to the development of nuclear power for Poland's socio-economic needs and which involve or may involve the exposure of persons or the environment to ionizing radiation.
2. Nuclear surveillance tasks shall consist in particular of:
  - 1) making analyses and evaluations of the development of nuclear power for national socio-economic needs, from the nuclear safety and radiation protection viewpoints;
  - 2) carrying out inspections in nuclear installations and organisational units in which nuclear materials, sources of ionizing radiation or radioactive waste are held;

- 3) deciding on questions related to nuclear safety and radiation protection;
- 4) imposing immediately applicable measures on the basis of the principles and procedures laid down in the Act;
- 5) establishing the necessary requirements to guarantee nuclear safety and radiation protection.

#### Section 52

1. Nuclear surveillance tasks shall be performed by the Chairman of the Agency, the Principal Inspector and the other inspectors responsible for nuclear surveillance.
2. The Chairman of the Agency shall appoint and terminate the appointment of the Principal Inspector and the other inspectors responsible for nuclear surveillance.
3. The Principal Inspector, answerable to the Chairman of the Agency, shall direct the work of the inspectors responsible for nuclear surveillance.

#### Section 53

1. The Chairman of the Agency may entrust performance of the tasks mentioned in Section 51, paragraph 2 (2), to officials of organisational units subject to nuclear surveillance.
2. Such officials shall enjoy the rights of inspectors responsible for nuclear surveillance conferred under this Act and in provisions adopted in pursuance thereof.

#### Section 54

1. In performance of their tasks, the inspectors responsible for nuclear surveillance shall be entitled:
  - 1) to visit, at any hour of the day or night, nuclear installations, means of transport and organisational units in which nuclear materials, sources of ionizing radiation or radioactive waste are used, produced, stored or transported;
  - 2) to examine documents dealing with nuclear safety and radiation protection in the nuclear installation or organisational unit subject to control;
  - 3) to verify that the activities referred to in Section 4, paragraph 1, comply with the nuclear safety and radiation protection provisions as well as the conditions laid down in the relevant licences;

- 4) to undertake, as necessary, independent technical and dosimetry measures.

2. Inspectors responsible for nuclear surveillance shall carry out nuclear safety and radiation protection controls on the authority of their service card, while the persons referred to in Section 53, paragraph 1 shall do so on the basis of an individual authorisation issued by the Chairman of the Agency or the Principal Inspector responsible for nuclear surveillance.

3. The Director of the nuclear installation or organisational unit being inspected shall supply all necessary resources and meet the conditions necessary for the inspection, and make available all documents.

4. The employees of the unit being inspected shall give the inspectors responsible for nuclear surveillance oral or written explanations concerning questions related to the subject of the inspection.

#### Section 55

1. Should an inspection reveal a direct threat to nuclear safety or radiation protection, the Chairman of the Agency, the Principal Inspector and the inspectors responsible for nuclear surveillance shall impose emergency measures designed to eliminate the danger.

2. When emergency measures have been imposed by the inspector responsible for nuclear surveillance, the Director of the unit inspected may request the Principal Inspector responsible for nuclear surveillance to annul or modify these measures, and if they were imposed by the Principal Inspector, he can make the same request to the Chairman of the Agency.

3. The introduction of a request referred in paragraph 2, above, shall not suspend implementation of the emergency measures.

#### Section 56

In the case referred in Section 12, paragraph 2:

- 1) an action to declare a decision null and void may also be brought by the Chairman of the Agency;
- 2) the competent body in such a case brought by the Chairman of the Agency, shall suspend implementation of the decision.

#### Section 57

1. The Chairman of the Agency may require that any breaches of nuclear safety and radiation protection provisions or any shortcomings in respect of the requirements and conditions laid down in licences granted in implementation of the provisions of this Act, be rectified within a given period.

2. Should irregularities other than those defined in paragraph 1, above, be found, the Chairman of the Agency may ask the Director of the unit inspected or the Director of the unit to which the latter is answerable, to ensure that these irregularities are corrected.

3. The Chairman of the Agency may, if necessary, file claims against those persons guilty of the irregularities in question.

4. The Director of the unit against whom such a claim is filed shall be required, within a period of thirty days from the date on which he receives it, to inform the Chairman of the Agency of the period within which and the manner in which the claim will be satisfied.

#### Section 58

The procedure to be followed in cases of nuclear surveillance shall be governed by the provisions of the Code of Administrative Procedure.

#### Section 59

Any decision involving nuclear safety and radiation protection may be contested before the Upper Administrative Tribunal [Naczelny Sad Administracyjny].

#### Section 60

Persons exercising nuclear surveillance duties shall enjoy, in the performance of their tasks, the protection afforded civil servants.

#### Section 61

The Council of Ministers shall adopt regulations defining the organisation, detailed tasks and implementation procedures for nuclear surveillance.

### Part 11

#### Liability for breaches of nuclear safety and radiation protection

#### Section 62

1. Any person who:

- 1) without the necessary licence or in breach of the conditions imposed therein, undertakes an activity referred to in Section 4, or

proceeds with an import or export referred to in Section 6, paragraph 2, or employs workers who do not possess the required qualifications or the skills or competence specified in nuclear safety and radiation protection regulations;

- 2) while responsible for nuclear safety and radiation protection, allows a worker or other person to suffer exposure in breach of the provisions of Sections 7 or 9;
- 3) fails to fulfill his obligations in respect of dosimetry readings or the registration of nuclear materials, sources of ionizing radiation or radioactive waste;
- 4) makes the performance of nuclear safety or radiation protection control tasks impossible or difficult or, in breach of his duty, fails to supply information or supplies false information, or conceals the truth in relation to nuclear safety or radiation protection matters;
- 5) fails to implement nuclear surveillance decisions in spite of administrative enforcement procedures having been applied against him;
- 6) has lost or abandoned without taking appropriate safety measures, nuclear materials which had been entrusted to him, or a source of ionizing radiation or radioactive waste;
- 7) fails to fulfill his nuclear safety or radiation protection obligations during the transport of nuclear materials, sources of ionizing radiation or radioactive waste or during the preparation of such materials, sources or waste for transport or storage,

shall be liable to a prison sentence, a restriction of his freedom or a fine.

2. Any person who:

- 1) while employed in a nuclear installation, fails to inform his immediate superior or the Nuclear Inspectorate of an event or state of affairs capable of constituting a danger from the nuclear safety or radiation protection viewpoint;
- 2) in spite of his obligation to do so, fails to inform the Nuclear Inspectorate of the moment when an activity requiring surveillance is to be undertaken,

shall be liable to a fine.

## Part 12

### Special and final provisions

#### Section 63

The Ministers of Defence and of the Interior, as appropriate, and in agreement with the Chairman of the National Atomic Energy Agency, shall determine the principles and methods of application of the provisions of this Act in the organisational units for which they are responsible.

#### Section 64

Until enactment of the provisions of this Act, the provisions enacted in implementation of the Act referred to in Section 65 shall remain in force provided they are not contrary to the provisions of this Act, during a maximum period of six months, starting from the date on which this Act shall enter into force.

#### Section 65

The Act dated 27th February 1982 creating the National Atomic Energy Agency (Legal Gazette No. 7, Act No. 64) is hereby repealed.

#### Section 66

This Act shall enter into force on 1st July 1986.