# NUCLEAR LAW
## BULLETIN No. 49

## Contents



*This Bulletin includes a Supplement*


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Nuclear Energy Agency
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# ORGANISATION FOR ECONOMIC CO-OPERATION AND DEVELOPMENT

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

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

The original Member countries of the OECD are Austria Belgium Canada Denmark France Germany Greece Iceland, Ireland, Italy Luxembourg the Netherlands Norway Portugal Spain Sweden Switzerland Turkey the United Kingdom and the United States The following countries became Members subsequently through accession at the dates indicated hereafter Japan (28th April 1964) Finland (28th January 1969) Australia (7th June 1971) and New Zealand (29th May 1973) The Commission of the European Communities takes part in the work of the OECD (Article 13 of the OECD Convention) Yugoslavia has a special status at OECD (agreement of 28th October 1961)

## *NUCLEAR ENERGY AGENCY*

*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 harmonization 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*

# FOREWORD

*This edition of the Bulletin sheds a light on a variety of topics in the field of nuclear law. the Nuclear Non-Proliferation Treaty (NPT) and its future, the relationship between space law and nuclear law, the debate on law and ethics as applied to radioactive waste management Also, a note on case law deals with the complex problem of internal and external exposure to radiation in the United States*

*At the international level, the 1988 Joint Protocol linking the Vienna and Paris Nuclear Liability Conventions has entered into force, thus widening the geographical scope for compensation of potential victims of nuclear accidents NEA and IAEA countries have been invited to adopt the international INES reference scale for nuclear accidents and the Council of the European Communities, considering that the health protection of workers and the public requires that shipments of radioactive waste be subject to a system of prior authorisation, has adopted a directive aiming to control such activities*

*The reader will note a few changes in the layout of the Bulletin for better legibility The list of correspondents to the Bulletin, whose assistance is invaluable in collecting and processing information, has now been placed after the text*

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## SUPPLEMENT

# Nuclear Testing and the Future of the Nuclear Non-Proliferation Treaty Are the Nuclear-Weapon States Legally Obligated to Seek a Comprehensive Test Ban?*

*By Burrus M Carnahan***

***Abstract***

**Article VI of the Nuclear Non-Proliferation Treaty (NPT) provides that its Parties must pursue negotiations to cease the nuclear arms race and to achieve through a treaty, general and complete disarmament under strict international control The NPT Parties have met at four NPT review conferences and, until now, have been unable to reach a consensus on a comprehensive test ban This article defines the precise juridical obligations created by Article VI under accepted principles of treaty interpretation**

*Introduction*

Since it entered into force in 1970, the Nuclear Non-Proliferation Treaty[1] (NPT) has been the keystone of international efforts to prevent the spread of nuclear weapons With over 140 states Party, the Treaty has played a major role in creating and maintaining an international consensus that acquisition of nuclear weapons is neither a source of international prestige nor a legitimate way for states to deal with security problems[2]

The future of the Treaty is now in doubt, however In 1995, its Parties will meet to decide "whether the Treaty shall continue in force indefinitely, or shall be extended for an additional fixed period or periods"[3] During the negotiation of the Treaty in the Eighteen Nation Disarmament Committee (ENDC), the smaller, non-nuclear powers had insisted on this provision As former U S Atomic Energy Commission chairman Glenn Seaborg has observed, its effect is to hold the duration of the Treaty "hostage to the performance of the superpowers in keeping their commitments, particularly with respect to disarmament negotiations"[4]

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

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The non-nuclear weapon states in the ENDC sought three distinct commitments from the United States, Great Britain and the Soviet Union as a quid pro quo for giving up the nuclear weapons option themselves

- first, that the nuclear powers would negotiate towards the eventual elimination of their own nuclear arsenals,[5]

- second, that they would share in the benefits of peaceful nuclear technology,[6] and

- third, that the nuclear powers would not use nuclear weapons against them and would protect them against nuclear attacks[7]

The commitment to disarmament and nuclear arms control negotiations, as codified in Article VI of the Treaty, has proven the most important of these issues from the viewpoint of the non-nuclear weapon states The key to a majority vote in 1995 in favour of a long or indefinite extension of the Treaty would therefore appear to lie with successful nuclear arms control negotiations

Unfortunately, this issue has also proven to be one on which nuclear and non-nuclear weapons states are farthest apart, largely because many Parties to the NPT equate nuclear arms control with the conclusion of a comprehensive ban on nuclear testing This overemphasis on a nuclear test ban reflects an erroneous construction of the NPT however

*The NPT and a Comprehensive Test Ban*

The importance of the test ban issue first became apparent at the four NPT review conferences, held by the Parties to the Treaty every five years between 1975 and 1990[8] The 1980 and 1990 review conferences were unable to reach consensus on a final document due to the inability of the United States and the United Kingdom to agree to language on disarmament and nuclear testing demanded by some of the more militant non-aligned states[9] For many of the Third World Parties to the NPT, the conclusion of a comprehensive nuclear test ban has become virtually a litmus test of superpower compliance with Article VI of the Treaty[10] The United States and the United Kingdom, on the other hand, have found themselves with little flexibility on the testing issue

Negotiations on nuclear testing limits have proceeded intermittently since 1958[11] The Limited Test Ban Treaty of 1963[12] established the first important international controls over American and Soviet nuclear testing, by prohibiting all tests not conducted underground Under the Threshold Test Ban Treaty[13], the United States and the Soviet Union agreed to limit the size of these underground tests to those having a yield of 150 kilotons[14] or less Further limitations have proven much more difficult to negotiate, however

Initially, American concern centered on verification of new testing limits These concerns prevented ratification of the Threshold Test Ban Treaty signed in 1974, until 1990, after negotiation of a new verification protocol[15]

More recently, U S government concern has centered on the adverse impact a comprehensive test ban could have on the country's nuclear deterrent forces In 1981, the

United States announced that a comprehensive test ban should be considered only a "long term goal," and in 1982 it withdrew from the comprehensive test ban negotiations[16] Current American policy, as stated by National Security Advisor Brent Scowcroft, is that "the president is firm in his commitment to a step-by-step process [towards further nuclear test limits] and to a comprehensive test ban as a long-term objective of the United States We are convinced, however, that so long as the United States must rely upon nuclear weapons for deterrence, we must also have a sensible testing programme [17]" To critics of both the NPT and U S testing policy, this position simply reflects an unwillingness of the United States to comply with its legal obligations under article VI of the NPT

*The Interpretation of NPT Article VI*

The Article that has given rise to such controversy is brief and appears relatively straightforward

*ARTICLE VI*

> *Each of the Parties to the Treaty undertakes to pursue negotiations in good faith on effective measures relating to cessation of the nuclear arms race at an early date, and to nuclear disarmament, and on a treaty on general and complete disarmament under strict and effective international control*

Article VI was included in the NPT as a means of securing some degree of equality between the obligations of the non-nuclear-weapon states, who bound themselves not to obtain such weapons so long as the Treaty remained in force for them, and the nuclear-weapon states who, in the absence of Article VI, would have been under no obligation to reduce their own nuclear arsenals The new institution of review conferences was similarly created primarily to furnish a forum to discuss compliance with Article VI

Given that political disagreement over Article VI compliance has been intense, and is likely to increase as the NPT extension conference approaches in 1995, it would be useful to define the precise juridical obligations created by the Article under accepted principles of treaty interpretation Such an examination finds little support to the argument that compliance with Article VI requires negotiation of a comprehensive test ban

*Preliminary Consideration Text Versus Context*

Necessarily, any effort to interpret a treaty provision begins by looking at the grammatical construction of the text itself The text is, after all, a crystallization of what the parties negotiated, and it has presumably been drafted by diplomatic and legal experts to state as precisely as possible what that agreement was, and to exclude any ideas that were not agreed[18] Efforts to find the intention of the parties by looking outside the text itself should therefore be regarded with a certain skepticism, if not suspicion

The Nigerian jurist Elias, a former judge of the International Court of Justice, concludes that the textual approach is "the basic approach most generally favoured," [19] and has become the "norm" of the International Court of Justice[20] Eastern European jurists

have also stressed the importance of not going beyond the ordinary meaning of a treaty text in the interpretation process[21]

A strictly grammatical approach to treaty interpretation has certain obvious limitations[22], and other techniques must be then called upon to avoid these limitations Aside from the text of the clauses being construed, all would agree that other articles and provisions of the treaty should be considered in the process of interpretation These would include the preamble of the treaty (especially pertinent in construing NPT Article VI) Disagreement has arisen, however, over what additional facts, principles and documents may be taken into account beyond the text of the treaty itself

*The Problem of Negotiating History*

The use of negotiating history has perhaps caused more scholarly and judicial disagreement than any other aspect of treaty interpretation[23] The potential problems of excessive reliance on multilateral negotiating history have been described by Professor Schwarzenberger as follows

> If several states participate in drafting a treaty, the difficulties raised by the use of preparatory material correspondingly multiply Strong speeches may be made for purposes of the record, but merely cover a strategic retreat Circumstances which are not necessarily recorded in conference minutes, may induce one of the participants to withdraw its previous objections Delegates who are confident that, for intrinsic or extrinsic reasons, their views will ultimately prevail may permit themselves the luxury of dignified silence Ought a premium to be put on vocalism by subsequently ascribing to such efforts the character of a common intention[24]?

It should be noted that these problems arise not so much from the use of negotiating history per se, but rather from its unsophisticated use As long as one remembers that preparatory work on an agreement is neither part of the agreement nor itself binding on the parties, it can safely be used as the source of valuable insights into the origins of a treaty's language

In particular, to avoid the dangers outlined by Professor Schwarzenberger sophisticated use of negotiating history cannot involve a simple counting exercise where the number of speeches on one side of an issue is compared with the number (if any) on the other side Rather, negotiating history should elucidate the thinking of a treaty's drafters by showing what proposals they had before them and suggesting why they adopted certain texts and rejected other language

*Preliminary Considerations Restrictive Versus Expansive Interpretation*

State sovereignty is the fundamental organising principle of the international legal system As sovereigns, states are legally free to do whatever they choose, unless the act is prohibited by some rule or principle of international law It is naturally to be assumed that states do not lightly surrender the freedom of action deriving from their sovereignty Therefore, if a choice is possible between two or more interpretations of treaty, jurists have

traditionally chosen the one that imposed the minimum restrictions on the freedom of the parties[25] This technique is referred to as the principle of restrictive interpretation

*The Principle of Effectiveness*

If applied too inflexibly, however, the principle of restrictive interpretation may come into conflict with another generally accepted principle of treaty interpretation, the principle of effectiveness This principle requires that treaty language be interpreted in such a way as to carry out the general purposes of the treaty or the main objects that it is intended to accomplish[26] It is to be noted that NPT Article VI itself refers to the pursuit of "effective" measures of arms control and disarmament, reflecting the drafters' concern over the need to ensure effectiveness[27]

*Interpretation under the Vienna Convention on the Law of Treaties*

Since 1969, the traditional principles of treaty interpretation have been superseded, to at least some degree, by the terminology in Articles 31 and 32 of the Vienna Convention of the Law of Treaties[28] Initially drafted by the U N International Law Commission, then adopted by an international conference and opened for signature by the U N General Assembly, the Vienna Convention was intended to restate and update the customary law of treaties, and its provisions on treaty interpretation are now generally accepted as accurate statements of customary law[29]

In the debate over keeping within the text versus use of negotiating history, it is worth noting that the Vienna Convention comes down firmly on the side of those who favour emphasis of the written text[30] Article 32 relegates negotiating history (preparatory work) to the status of a supplementary means of interpretation Other supplementary means, within the purview of Article 32, would presumably include the traditional principle of restrictive interpretation[31]

Under the Vienna Convention, if any portion of the negotiating history/preparatory work is to be considered as other than merely a supplementary means of interpretation, then it must be shown that all the parties had agreed, in conjunction with the conclusion of the treaty, that those portions of the negotiating history represented an accurate interpretation of certain parts of the treaty Article 31, paragraph 2, would then mandate consideration of such documents as of the treaty's context, as instruments or agreements made between "all the parties" or accepted by "all the parties" in "connexion with the conclusion of the treaty "

*The Importance of Subsequent Practice*

While the Vienna Convention relegates negotiating history, or preparatory work, to a subsidiary category of aids to interpretation, it quite properly places emphasis on using the subsequent practice of states party to a treaty Even if it is clear, preparatory work can at most illuminate the issues that were thought to be important at the time a treaty was negotiated

The meaning of a treaty text is not necessarily a fixed and unchanging thing crystallized at the moment it enters into force Instead, it often changes and grows in an organic manner, at the will of its parties[32] Indeed, to deny the parties to a treaty the power to change its interpretation and develop the meaning of its text is to deny a fundamental aspect of their sovereignty

The significance of different Articles of a treaty and the meaning of its terms often change over the life of a treaty Issues that assumed great importance during negotiation may turn out to create little problem in implementation The negotiation of NPT Article I for example, was long driven by Soviet concerns over, and a United States support for, a NATO multilateral nuclear force, an issue of no importance after conclusion of the Treaty[33] Similarly, NPT Article V, concerning peaceful nuclear explosions, has continually declined in importance since its entry into force

*The Interpretation of NPT Article VI*

Consideration of NPT Article VI under the criteria in Articles 31 and 32 of the Vienna Convention must begin with a careful examination of the text A textual analysis indicates that the basic obligation under Article VI is not the conclusion of specific arms control or disarmament agreements, or even the conduct of good faith negotiations towards that end, but rather the good faith *pursuit* of such negotiations Terms in a treaty are to be given their ordinary meaning, unless it can be established that some special meaning was intended The ordinary meaning of "to pursue negotiations in good faith" does not prejudge the result of those negotiations so as to require the actual conclusion of any agreement

This textual construction can be confirmed, in accordance with Article 32 of the Vienna Convention, by reference to the negotiating history of Article VI During NPT negotiations in the ENDC, India proposed an amendment that would have required the nuclear-weapon states to negotiate reductions in existing stockpiles of weapons and delivery systems, and Romania proposed language requiring the nuclear-weapon states to "adopt specific measures" of disarmament[34] The ENDC thus had before it, when it approved the present text of Article VI alternative language that would have clearly mandated negotiation or implementation of actual disarmament measures The rejection of that alternative language confirms the ordinary meaning of the phrase "to pursue negotiations in good faith "

This does not mean that Article VI can be regarded as a dead letter, which individual parties are free to ignore at their own discretion Such a construction would be in conflict with the objects and purposes of the NPT, which clearly include contributing to the achievement of disarmament[35] Rather, these objects and purposes reinforce the importance of good faith as the test of state compliance with Article VI

*Good Faith Compliance with Article VI Is a Comprehensive Test Ban the Only Way?*

What, then, does good faith require of an NPT party when implementing Article VI? One delegation to the Fourth NPT Review Conference proposed draft final document language that would have required negotiation of a comprehensive test ban as "the single

most important measure relating to cessation of the nuclear arms race at an early date[36]," and would have concluded that

> unwillingness of a Party to the Treaty to engage in multilateral comprehensive test ban treaty negotiations shall be deemed an act contrary to the spirit and letter of the Treaty since it represents non-compliance with the obligations under the Treaty[37]

Such a construction would contradict the ordinary meaning of Article VI By the terms of the Article, the negotiations to be pursued must involve "effective measures," rather than merely cosmetic or symbolic ones, and those measures must relate to either

- cessation of the nuclear arms race at an early date,
- nuclear disarmament, or
- a treaty on general and complete disarmament under strict and effective international control

The broad, general language used to describe two of these three objectives implies there is necessarily a considerable measure of discretion in the states party to the Treaty as to the measures they pursue at any particular time The Article mentions only one specific measure to be negotiated, and that related to general and complete disarmament, not ending the arms race That by itself suggests that the drafters did not intend to require negotiation of any specific measure or treaty in order for a party to comply with its obligations to pursue nuclear disarmament or an end to the arms race

*A Comprehensive Test Ban and the NPT Preamble*

The preamble of a treaty is not binding on the parties Nevertheless, the language of any treaty, including the NPT, must be interpreted in the light of all its text, including the preamble State practice, at the four NPT Review Conferences, specifically associates preambular paragraphs 8 through 12 with Article VI While preambular paragraph 10 does mention the discontinuance of nuclear weapons tests, there is nothing to suggest that the Parties regarded Article VI as requiring the negotiation of such a ban as "the single most important measure relating to cessation of the nuclear arms race at an early date "

As a whole, the relevant preambular language supports the construction of Article VI suggested above, i e , that there are a number of possible measures parties might pursue in good faith Thus in preambular paragraph 8 the Parties declare their intention to achieve the "earliest possible" end to the nuclear arms race and "to undertake effective measure *in the direction of* nuclear disarmament " (Emphasis added ) The next paragraph urges all states to co-operate towards that end

Again, in preambular paragraph 11 the Parties express their desire to ease tension in order to "facilitate" a treaty on general and complete disarmament that would include

- cessation of the manufacture of nuclear weapons,
- liquidation of existing stockpiles

- elimination of their means of delivery from national arsenals

These would also appear to be measures "in the direction of" nuclear disarmament, under preambular paragraph 8

Preambular paragraph 10, by contrast, does not speak of the desires or intentions of the Parties to the NPT Instead, it merely recalls a determination to end testing expressed in the preamble to a different treaty, the 1963 Limited Test Ban Treaty From this reference it can be inferred that pursuing a test ban would be one way a Party to the NPT might fulfill its obligations under Article VI It stands the language of both the Article and the Preamble on its head, however, to argue that this is the only way to pursue that obligation

*A Comprehensive Test Ban and Restrictive Interpretation*

The textual construction of Article VI is confirmed by supplementary means of interpretation, including the principle of restrictive interpretation Restrictive interpretation, as noted above, rests on the presumption that states do not lightly surrender their sovereignty and freedom of action To construe the broad language of Article VI as narrowly requiring a certain action - pursuit of a test ban - not specified in the Article would be an unwarranted interference with the sovereign discretion of the States Party to the Treaty

*A Comprehensive Test Ban and Negotiating History*

The negotiating history similarly fails to support the idea that pursuit of a test ban is legally required by Article VI From the beginning, serious divisions existed among the States negotiating the NPT over what measures should be pursued in order to achieve the disarmament objectives embodied in the Treaty The most prominent divisions over negotiating priorities were those between the United States and the Soviet Union These divisions led both those powers to support a step-by-step approach to future arms control measures[38]

This approach was generally opposed by the eight neutral and non-aligned members of the ENDC Even among them, however, there were divergences over what disarmament measures should have priority[39] In their initial 1965 call for the NPT to be coupled with "tangible steps" towards nuclear disarmament the eight non-aligned members did not limit themselves to calling for a test ban in preference to all other measures

> The eight delegations have individually put forward a number of suggestions as to such tangible steps, including a comprehensive ban of nuclear weapons testing a complete cessation of production of fissionable material for weapons purposes, a freeze and a gradual reduction of the stocks of nuclear weapons and the means of their delivery, the banning of the use of nuclear weapons and assurance of the security of non-nuclear-weapon states[40]

During debates in the ENDC, a number of delegations expressed views on what the most appropriate "tangible steps" or "effective measures" would be Many referred to a comprehensive test ban as one such measure, but most included it among several that

might be promising The Mexican proposal of 19 September 1967, is particularly significant, both as an example of a proposal listing many measures beside a test ban that might be adopted, and as an aid in interpreting the current Article VI language It stated

> Each nuclear weapon State Party undertakes to pursue negotiations in good faith, with all speed and perseverance, to arrive at further agreements regarding the prohibition of all nuclear weapon tests, the cessation of the manufacture of nuclear weapons, the liquidation of all their existing stockpiles, the elimination from national arsenals of nuclear weapons and the means of their delivery, as well as to reach agreement on a Treaty on General and Complete Disarmament under strict and effective international control[41]

Thus the ENDC had before it proposed treaty language that would have referred to the pursuit of specific, listed negotiations to end the arms race and achieve nuclear disarmament It rejected this approach in favour of the current broad language of Article VI

The current language of Article VI first appeared in the parallel United States and Soviet drafts tabled at the ENDC on 18 January 1968 The reason this approach was ultimately accepted by all ENDC members, including those who had strongly pressed for mention of specific negotiations, is suggested by the comments of the Swedish delegate, one of the strongest backers of a reference to a comprehensive test ban

She recognized that under the U S -Soviet draft of Article VI "the obligations on the nuclear weapon states are considerably weaker " than in alternative drafts, including the Mexican proposal, and noted in this context the omission of references to a comprehensive test ban and other specific measures Nevertheless, she was willing to accept this text, with its weaker obligation, because she was "mindful of the difficulties involved " In particular, she stated that "to enumerate some specific measures might be counterproductive, as agreements on certain other scores may come to present opportunities for earlier implementation[42] " This, of course, is exactly what happened, as various arms control agreements, other than a comprehensive test ban, were successfully concluded in the 1970s and 1980s Thus the negotiating history again supports the interpretation that, except for a treaty on general and complete disarmament, Article VI cannot be construed to require pursuit of any specific negotiation

Finally, it should be noted that there is no evidence that any of the documents or speeches referring to a comprehensive test ban were agreed to by "*all* the parties" to the NPT negotiations These references to a comprehensive test ban cannot, therefore, be considered as part of any agreement made or instrument accepted in connection with the conclusion of the NPT under Article 31 of the Vienna Convention At most, these speeches and documents remain merely a supplementary means of interpretation, expressing only the views of individual states They cannot be used to undercut the ordinary meaning of the words of Article VI

*A Comprehensive Test Ban and State Practice*

State practice, accepted by the parties as authoritative, is in any event a better aid in the interpretation of treaties than negotiating history Although in the case of a

multilateral treaty, authoritative state practice is often difficult to document in the case of the NPT, the activities of the Review Conferences provide a valuable source of such practice, especially in relation to Article VI

The Final Document of the First Review Conference, in 1975, declared a comprehensive test ban to be "one of the most important measures to halt the nuclear arms race," and "expresse[d] the hope" that an early solution would be reached to *technical and political difficulties standing in its way It did not declare this the only such* measure that should be adopted in preference to any other In particular, the Conference also appealed to the nuclear-weapon states to conclude a new SALT agreement as outlined at Vladivostok in 1974[43]

The Second Review Conference, in 1980, was unable to reach consensus on a final document due to disagreements over arms control matters, a factor that should itself have signalled that the consensus over a test ban that had existed in 1975 might no longer have been operative The Final Declaration of the Third Review Conference, in 1985, expressly noted a split in views on the value of a test ban as an effective measure of arms control Except for certain states, the Conference regretted that a comprehensive test ban had not been concluded, and called for the resumption of urgent negotiations to that end, as a matter of highest priority The Conference also noted that other states did not agree with this, and considered deep and verifiable reductions in existing arsenals to be the highest priority (i e , most effective measure) under Article VI[44]

The Fourth Review Conference, in 1990 was unable to reach consensus on a final document due to precisely this issue - the priority to be accorded to comprehensive test ban negotiations[45] Clearly there was no agreed new meaning to Article VI at that Conference

State practice under NPT thus establishes no new agreement among the parties to the Treaty that would modify the ordinary meaning of the text of Article VI On the contrary, the lack of consensus in 1980 and 1990 over arms control issues, together with the express recognition of differing views in 1985, affirmatively establish considerable differences among the parties on the priority to be accorded to various arms control and disarmament proposals

There has always been disagreement over which disarmament measures should be pursued with the highest priority, both before and after the drafting of NPT Article VI No state practice has emerged to alter the general nature of obligations under Article VI and in particular no law-creating consensus has ever existed on whether a test ban would be the most "effective measure" to end the nuclear arms race

*Extending the NPT The Ultimate Issue*

As a political matter of course, simple compliance with Article VI may not be enough to save the Treaty in 1995 There are currently more than 140 Parties to the NPT and any extension requires a favourable vote from an absolute majority of all the Parties Over 70 States Party must consent to any extension of the Treaty, and some observers believe it will be quite difficult to obtain this majority without significant progress towards a comprehensive test ban[46] Whatever the merits of this view, and of a comprehensive test

ban itself, its proponents should stop asserting that NPT Article VI establishes a legal obligation to seek such a ban now That position is both historically and legally erroneous

### *Notes and References*

1 Done July 1, 1968

2 See Dunn, "The NPT and Future Global Security", in *Nuclear Non-Proliferation and Global Security* 13, 15 (D Dewitt, ed , 1987) The core of the Treaty is in Article II, in which all non-nuclear weapon states party agree not to receive, manufacture or otherwise acquire nuclear weapons or other nuclear explosive devices Under Article III, these states agree to accept safeguards administered by the International Atomic Energy Agency on all peaceful nuclear activities to ensure that no special nuclear material or source material is diverted to nuclear explosive purposes Under the Treaty, a non-nuclear weapons state is one that had not conducted a nuclear test explosion prior to January 1, 1967 See Article IX, paragraph 3, Treaty on the Non-Proliferation of Nuclear Weapons The United States, the Soviet Union and Great Britain, which also served as the Treaty's depositaries, were for long the only nuclear weapon states part to the NPT On June 3, 1991, France announced its intention to accede to the NPT, see "France Offers Arms Control Plan, Will Sign Nuclear Treaty", *Washington Post*, June 4, 1991 If France accedes, China will be the only remaining state eligible to become a party to the NPT as a nuclear weapon state CF "China "Considering" Signing Nuclear Pact", *Washington Post*, June 19, 1991 [Note by the Secretariat China ratified the NPT on 9 March 1992 See Table of Status of NPT in this issue of the Bulletin ]

3 Article X, paragraph 2, NPT The same paragraph provides that "This decision shall be taken by a majority of the Parties to the Treaty," at a conference to be convened 25 years after its entry into force Considering the importance of this paragraph for the future of the NPT, the gaps and ambiguities in it are surprising It does not specify whether, if the 1995 conference extends the NPT for a fixed period, the Parties may later meet during this period to extend it again The reference to extensions for fixed "periods" seems to contemplate the 1995 conference might provide for future conferences to meet at regular intervals to decide the Treaty's fate for another fixed period Presumably the 1995 conference, if it takes this course, will also have to decide how these future extension conferences are to reach their decisions, i e , by majority of the States Party, by majority of those present at the conference, or by some special majority Finally, Article X provides little guidance on the Treaty's fate in the case of deadlock at the 1995 conference, i e , if non of these options commands the support of a majority of States Party to the NPT The negotiating history of the paragraph offers little enlightenment on any of these issues See 2 M Shaker, *The Nuclear Non-Proliferation Treaty* 859-64 (1980) There will be ample room for practical constructions by the parties themselves during and after the 1995 conference

4 G Seaborg with B Loeb, *Stemming the Tide/Arms Control in the Johnson Years* 381 (1987) See also 2 M Shaker, supra note 3

5 See Article VI, NPT, 2 M Shaker, supra note 3, at 555-61

6 See Article IV, NPT, 1 M Shaker, supra note 3, at 293 et seq NPT Article V guarantees the non-nuclear weapon states access to any potential benefits of peaceful nuclear explosions This Article quickly became a dead letter

7 Due to differences between the nuclear weapon states, these issues were not dealt with in the text of the NPT, but rather through other, nonbinding policy statements, see G Seaborg supra note 4, at 371-77

After consulting with its principal allies, the United States issued its assurance against nuclear attacks on June 12, 1978, as part of its participation in the UN General Assembly Special Session on Disarmament The statement reads

> The United States will not use nuclear weapons against any non-nuclear weapons state party to the NPT or any comparable internationally binding commitment not to acquire nuclear explosive devices, except in the case of an attack on the United States, its territories or armed forces, or its allies, by such a state allied to a nuclear-weapons state or associated with a nuclear-weapons state in carrying out or sustaining the attack

[1978] *Digest of U S Practice in International Law* 1610

> Other nuclear powers have issued the following assurances
>
> China [A]t no time and under no circumstances will China be the first to use nuclear weapons, and that it undertakes unconditionally not to use or threaten to use nuclear weapons against non-nuclear countries and nuclear-free zones
>
> France [I] will not use nuclear arms against a State that does not have these weapons and has pledged not to seek them except in the case of an act of aggression carried out in association or alliance with a nuclear-weapon state against France or against a State which France has a security commitment
>
> USSR [T]he Soviet Union will never use nuclear weapons against those States which renounce the production and acquisition of such weapons and do not have them on their territories
>
> Great Britain [As] to non-nuclear States which are parties to the [NPT] or to other internationally binding commitments not to manufacture or acquire nuclear explosive devices Britain undertakes not to use nuclear weapons against such States except in the case of an attack on the United Kingdom, its dependent territories, its armed forces, or its allies by such a State in association or alliance with a nuclear-weapon State

Institute for Defense and Disarmament Studies, the *Arms Control Reporter* 860-4 1 (January 1988 supp )

The request for assurances of assistance in the event of nuclear attack was met by U N Security Council Resolution 255, June 19, 1968, reprinted in 3 M Shaker, The Nuclear Non-Proliferation Treaty 968 The resolution states that the Council, and especially its permanent members, would "have to act immediately in accordance with their obligations under the United Nations Charter" in the event of "aggression with nuclear weapons or the threat of such aggression against a non-nuclear-weapon State " It also welcomed the "intention expressed" by the United States, the Soviet Union and Great Britain that "they will provide or support immediate assistance, in accordance with the Charter" to any party to the Nuclear Non-Proliferation Treaty that was the victim of such aggression

Some non-nuclear weapons states have expressed dissatisfaction with all these declaration because they are not legally binding on the nuclear weapons states, see Van Doren and Bunn, "Progress and Peril at the Fourth NPT Review Conference", *Arms Control Today*, Oct , 1990, at 8, 10 For a view that these declarations may be legally binding see E McWhinney, "The International Law of Detente" 57 (1978)

8 Article VIII, paragraph 3, NPT "Five years after entry into force of this Treaty, a conference of Parties to the Treaty shall be held in Geneva, Switzerland, in order to review the operation of the Treaty with a view to assuring that the Purpose of the Preamble and the provisions of the Treaty are being realized At intervals of five years thereafter, a majority of the Parties to the Treaty may obtain, by submitting a proposal to this effect to the Depositary Governments, the convening of further conferences with the same objective of reviewing the operation of the Treaty " The review conferences had no power to consider or propose amendments to the Treaty, and were essentially enforcement mechanisms, designed to use diplomatic pressure to secure compliance with the Treaty's provisions See Carnahan, "Treaty Review Conferences", 81 Am J Int'l L 226 (1987)

9 See, e g , Rockwood, "Non-Proliferation Treaty 1990 Review Conference Looking Towards 1995", 46 *Nuclear Law Bulletin 25*, 31-32 (1990), Shaker, "The Third NPT Review Conference Issues and Prospects", in *Nuclear Non-Proliferation and Global Security* 3, 5, 1987, "Chronology of the Comprehensive Test Ban", *Arms Control Today*, Nov , 1990, at 31, 33

10 See Rockwood, supra note 9, at 31, Van Doren and Bunn, "Progress and Peril at the Fourth NPT Review Conference", *Arms Control Today*, Oct , 1990, at 8, 9

11 See "Chronology of the Comprehensive Test Ban", *Arms Control Today*, Nov , 1990, at 34

12 Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space and Under Water, done August 5, 1963 For an account of recent efforts to convert this treaty to comprehensive test ban, see Zamora, "LTBT Amendment Conference to Continue, But No Test Ban in Sight", *Arms Control Today*, March 1991, at 14

13 Treaty with the Soviet Union on Limitation of Underground Nuclear Weapon Tests, signed July 3, 1974

14 i e , nuclear tests with an explosive power equivalent to 150 000 tons of TNT

15 Verification Protocol to the Treaty on Limitation of Underground Nuclear Weapon Tests, done June 1, 1990

16 See "Chronology of the Comprehensive Test Ban", *Arms Control Today*, Nov , 1990 at 31, 34

17 Letter to Senator Pell, July 9, 1990, quoted in *Arms Control Today*, Nov , 1990 at 30

18 "The words and sentences of a treaty offer tangible evidence of the consensus achieved by the parties Reliance on this method is a safeguard against unwarranted subjectivity " G Schwarzenberger, *International Law as Applied by International Courts and Tribunals* 501-502 (3d ed 1957)

19 T Elias, *The Modern Law of Treaties* 72 (1974)

20 See id at 73

21 See, e g , B Jankovic, *Public International Law* 302 (1984) G Tunkin, *Theory of International Law* 329 (W Butler Trans 1974) "One should above all reject the concept of interpretation which attaches exaggerated significance to the purposes and functions proclaimed in the charter of an international organization at the expense of diminishing the specific provisions of the charter " Id at 33

22 "The limitations of this technique are many Most words have more than one meaning The literal and ordinary meanings of words are not necessarily identical The syntax of a sentence is frequently capable of more than one construction Finally, the results of literal interpretation may be contrary to common sense or good faith unreasonable or absurd " G Schwarzenberger supra note 18 at 502

23 e g , compare H Kelsen, *Principles of International Law* 320-21 (1952) (negotiating history to be freely considered in determining intent of the parties, which is not necessarily accurately reflected in treaty text), with G Schwarzenberger supra note 18 at 514 (1957) (negotiating history is a "double-edged weapon" of equivocal character and limited value) The United States government and courts have historically been more ready to use negotiating history than have other governments See Restatement (3d) *Foreign Relations Law of the United States*, sec 325, comments e and g (1987)

24 G Schwarzenberger, supra note 18, at 514

25 See, e g , M McDougal, H Lasswell and J Miller, *The Interpretation of Agreements and World Public Order* 157 (1967), G Schwarzenberger, supra note 18 at 123

26 See, M McDougal, H Lasswell and J Miller, supra note 25 at 156 62 G Schwarzenberger, supra note 18 at 123, 509-10

27 The text of Article VI was deliberately tightened in order to emphasize this point See M Shaker, supra note 3, at 577 (1980)

28 Done May 23, 1969 The pertinent articles of the Vienna Convention read as follows

ARTICLE 31 - General rule of interpretation

1 A treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in light of its object and purpose

2 The context for the purpose of the interpretation of a treaty shall comprise, in addition to the text, including its preamble and annexes

(a) any agreement relating to the treaty which was made between all the parties in connexion with the conclusion of the treaty,

(b) any instrument which was made by one or more parties in connexion with the conclusion of the treaty and accepted by the other parties as an instrument related to the treaty

3 There shall be taken into account together with the context

(a) any subsequent agreement between the parties regarding the interpretation of the treaty or the interpretation of its provisions,

(b) any subsequent practice in the application of the treaty which establishes the agreement of the parties regarding its interpretation,

(c) any relevant rules of international law applicable in the relations between the parties

4 A special meaning shall be given to a term if it is established that the parties so intended

ARTICLE 32 - Supplementary means of interpretation

Recourse may be had to supplementary means of interpretation, including the preparatory work of the treaty and the circumstances of its conclusion, in order to confirm the meaning resulting from the application of Article 31 or to determine the meaning when the interpretation according to Article 31

(a) leaves the meaning ambiguous or obscure, or

(b) leads to a result which is manifestly absurd or unreasonable

29 See I Sinclair, *The Vienna Convention on The Law of Treaties* 19 (2d ed , 1984), T Elias, supra note 19, at 5 The United States government also routinely refers to the Vienna Convention, even though that government has never ratified it See, e g , [1980] *Digest of U S Practice in International Law* 418-19, [1973] *Digest of U S Practice in International Law* 360, cf Restatement (3d) *Foreign Relations Law of the United States*, sec 325 (1987)

30 "The Convention rule places emphasis on the consideration that the starting point in interpretation is the elucidation of the text of the treaty which is presumed to be the authentic expression of the intentions of the parties " I Sinclair, supra note 29, at 141

31 "In a number of decisions, the [International] Court emphasized that this rule of [restrictive] interpretation was merely a subsidiary rule It must be applied with the greatest caution, and it cannot operate where the intention of the parties is unequivocal" G Schwarzenberger, supra note 18, at 123-24

32 "The interpretation of an international treaty is the establishment of the result of the concordance of the wills of states as it was expressed in the treaty If certain changes and additions have been made in the treaty in the course of applying it, then naturally the interpretation of a treaty at a particular moment will also embrace the concordance of the wills of the parties to the treaty which has occurred in connection with such additions and changes " G Tunkin, supra note 21, at 335 Cf M McDougal, H Lasswell and J Miller, supra note 25, at 98-100

33 See G Seaborg, supra note 4, at 105-107, 174-78

34 See M Shaker, supra note 3, at 569-571 Note also the proposed Mexican text at note 41, infra

35 The intention and desire of the parties to achieve measures of disarmament is reflected, inter alia, in preambular paragraphs 8 and 11 of the NPT The Final Declaration of the 1985 NPT Review Conference, adopted by consensus, declared the objectives of the Treaty to be three

- the prevention of proliferation of nuclear weapons or other nuclear explosive devices,
- the cessation of the nuclear arms race, nuclear disarmament and a Treaty on general and complete disarmament, and
- the promotion of co-operation between States Parties in the field of peaceful uses of nuclear energy

Annex I, NPT/CONFK III/64/I, reprinted in *Nuclear Non-Proliferation and Global Security* 243 (D Dewitt ed , 1987)

36 Mexico Working Paper containing a draft outline of the NPT's operation Article VI and preambular paragraphs 8 to 12

37 Id at 8

38 See M Shaker, supra note 3, at 566

39 See M Shaker, supra note 3, at 55

40 Joint memorandum submitted by the eight non-aligned members to the ENDC, 15 Sept 1965, quoted in M Shaker, supra note 3, at 56

41 Quoted in MEXICO Working paper on the link between the provisions of the NPT regarding nuclear disarmament measures and those regarding the review conferences and the limited duration of the Treaty (Fourth NPT Review Conference document)

42 All quotations from Ambassador Myrdal's statement of February 8, 1968, to the ENDC, reprinted in *U S Arms Control and Disarmament Agency, Documents on Disarmament*, 1968, at 42, 44 To partially remedy the omission of any reference to a comprehensive test ban in Article VI, she proposed the cross-reference to the preamble of the 1963 Limited Test Ban Treaty that now appears in the NPT preamble

43 ANNEX I, NPT/CONF/35/I, reprinted in 3 M Shaker supra note 3, at 1075

44 See ANNEX I, NPT/CONF III/64/I, reprinted in *Nuclear Non-Proliferation and Global Security* 243 (D Dewitt ed , 1987)

45 See Rockwood, supra note 9 and Van Doren and Bunn, supra note 10

46 See Zamora, supra note 12 at 14, 17, Smith, "End Testing, Stem the Bomb's Spread", *Arms Control Today*, Nov , 1991, at 9, 10-11

# The Legal Regime of Nuclear Power Satellites
# A Problem at the Cross-Roads of Nuclear Law and Space Law*

*By Simone Courteix***

***Abstract***

**The number of nuclear-powered satellites rises constantly and, recalling the fear generated by the crash of the Cosmos 954 satellite, the author points out that radioactive debris falling on earth could represent as great a hazard as accidental releases of radioactive material from land-based nuclear installations Such satellites, therefore, can be governed by both space law and nuclear law On the basis of the international conventions applicable in the two fields and also with reference to the Law of the Sea and environmental law, the article analyses preventive and radiation protection measures as well as emergency plans and also raises the problem of liability and compensation for damage**

*Introduction*

The risk of re-entry into the Earth's atmosphere of the nuclear-powered Soviet satellite Cosmos 1900 in 1988 initiated international concern in this field As of early 1989, at least six nuclear-powered satellites had experienced malfunctions which could in some cases have caused the release of radioactive substances to the environment The best known case is that of Cosmos 954, whose accidental crash in Canada in 1978 proved that pieces of considerable size could return to the Earth's surface and cause radiation hazards to the population

The consequences for the environment and the population of an accident involving a satellite with a Nuclear Power Source (NPS) are similar to those of accidental releases of radioactive material from land-based nuclear installations since both may harm very large terrestrial areas and populations Nevertheless, important differences exist between land-based nuclear power stations and NPS in space On the one hand contrary to land-based nuclear power stations whose locations are well known the location of an accident

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* The author made a presentation on this question at the Colloquium of the International Institute of Space Law (IISL) held in Montreal Canada 7-12 October 1991 This article is reproduced in the Bulletin by kind permission of the author and the American Institute of Aeronautics and Astronautics Inc which will publish the article in the Proceedings of the Colloquium (Proceedings of the 34th International Colloquium on the Law of Outer Space - ISBN-1-56347-039-X) Responsibility for the ideas expressed and the facts given in this article rests solely with the author

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involving an NPS in space can be determined only shortly before impact On the other hand, any country, and not only the launching state, could be affected

These essential differences and similarities determine the legal regime applicable to this matter Actually, two legal regimes may apply to NPS satellites space law in view of the medium in which they operate, and nuclear law in view of their energy supply It is therefore necessary to identify the texts of positive law which may apply in this field today

Our analysis will distinguish between on the one hand measures to prevent this type of accident (information obligations, safety measures and measures for protection against radiation), and on the other hand post-accident measures, both concerning crisis management (information, emergency intervention and assistance plans) and concerning compensation for damage In view of this approach, this paper will be limited to provisions of positive law which already apply in this field[1] It will not deal with the "Principles for the use of nuclear power sources in outer space", which are presently being elaborated by the Legal Subcommittee of the UN Committee on the Peaceful Uses of Outer Space (COPUOS) These principles have in fact no legal binding force, even if some of them have already been adopted by consensus[2]

## *I PREVENTION*

### *1 Notification and Information about the Use of NPS*

Is the use of radioactive material in outer space allowed by space law? Does a procedure exist for advance notification of objects carrying nuclear power sources prior to each launch into outer space, and for notification in case of accidental re-entry of a malfunctioning space object on the territory of a third state? These are the first questions that come to mind when thinking of preventive measures that need to be adopted, in order to avoid such accidents and to limit their consequences

Some answers to these questions can be found in the 1967 Outer Space Treaty While its Article IV 1 formally forbids the placing of nuclear weapons in outer space, it contains no prohibition on the use, for peaceful purposes, of NPS in space One may therefore conclude that such use is lawful Nevertheless, States Parties must conduct their activities in outer space with due regard to the corresponding interests of all other States Parties to the Treaty, according to Article IX of the Treaty

The question of publication of information at different steps of the launching and mission of a satellite with an NPS on board is particularly important from the point of view of controlling radiation sources Article XI of the Outer Space Treaty repeats the general principle of disseminating information to the international community, by requiring States Parties to inform the Secretary General of the United Nations as well as the public and the international scientific community of the "nature" of such activities in space "to the greatest extent feasible and practicable" In addition, the Convention on Registration of Space Objects of 1975 provides in its Article IV that States shall furnish information to Secretary General of the United Nations

Providing information on the fact that an NPS is on board a satellite is nevertheless not compulsory, and it is possible to do it on a voluntary basis according to paragraph 2 of Article IV, which provides that "each State of registry may, from time to time provide the Secretary General of the United Nations with additional information concerning a space object carried on its registry" It is to this paragraph 2 of Article IV of the Registration Convention that the USSR referred when it notified the Secretary General on 13 May 1988 of the loss of radio contact with the nuclear powered satellite Cosmos 1900[3] This official notification however did not make any reference to the 1986 IAEA Convention on Early Notification of a Nuclear Accident, nor to the project of the notification principle as adopted by consensus by the Legal Subcommittee of COPUOS in May of the same year[4]

A second category of preventive measures, concerning another phase of the satellite's trajectory, is that of the information which the launching state must provide in case of re-entry of a malfunctioning space object with an NPS on board At present there is no compulsory notification procedure prior to the malfunctioning of a satellite in orbit which could endanger the Earth Only Resolution 33/16, adopted by the General Assembly of the United Nations in 1978 obliges launching states to inform states concerned in case a space object with an NPS on board is malfunctioning with a risk of re-entry of radioactive materials[5] The purpose of this resolution was to allow all suitable precautions to be taken However, as of 1986, consensus was reached within COPUOS on a "principle of notification of return" This principle on the one hand obliges the launching state to "inform timely states concerned in the event a space object is malfunctioning with a risk of re-entry of radioactive materials to the Earth's atmosphere", and on the other hand determines the procedure that must be followed to provide the necessary information to states concerned about the planning of intervention measures When this principle which has as yet no binding force will be embedded in a Convention it will better fulfil the requirement of urgency in case of an NPS accident than the corresponding principle of the International Atomic Energy Agency's (IAEA) Convention on Early Notification of a Nuclear Accident

Indeed, even though the above 1986 Vienna Convention on Early Notification of a Nuclear Accident concerns "any nuclear reactor wherever located" (Article 1 2a) it can only apply to an accident "involving facilities or activities of a State Party" "from which release of radioactive material occurs or is likely to occur and which has resulted or may result in an international transboundary release that could be of radiological safety significance for another state"[6]

It may be difficult to interpret this Convention, especially in respect of the definition of an accident involving a nuclear reactor in space For instance, one may wonder whether the loss of radio contact with a satellite with an NPS which might re-enter and release radionuclides, constitutes an accident according to the Convention It is clear that the Soviet authorities excluded the application of the Vienna Convention in the Cosmos 1900 case by stating that the satellite was equipped with automatic safety systems in order to exclude all risks of contamination by radiation after the end of the flight It would probably have been otherwise if the crash of the Cosmos 1900 had been ineluctable The application of the Convention on Early Notification to the malfunctioning of an NPS in space is therefore not only a problem of "law" but also requires clarification of the definition of an accident involving nuclear reactors in space

Any nuclear accident involving facilities or activities falling under the jurisdiction or control of a State Party, whether undertaken on earth, at sea or in space (paragraph f of Article 1 2 concerns "the use of radioisotopes for power generation in space objects"), is therefore subject to the obligation of notification as required by the Convention The Convention in fact obliges the state on whose territory the installation is located or where the activity concerned is being carried out, to notify and inform any state which is or may be physically affected by a nuclear accident It is clear that the launching state, that is "a state which launches or procures the launching of a space object or from whose territory or facility a space object is launched", retains jurisdiction and control over a space object with nuclear power sources Regarding the definition of accident, it is actually enlarged, since the probability of damage suffices to make the Convention applicable The event must either cause damage or be likely to cause damage, but it is not relevant whether such damage could have been foreseen[7] Article 2 of the Convention sets out the procedure for the provision of information It obliges states which have jurisdiction over a nuclear power system to

"- forthwith notify, directly or through the IAEA, those States which are or may be physically affected and the Agency of the nuclear accident, its nature, the time of its occurrence and its exact location where appropriate, and

- promptly provide the States directly or through the Agency, and the Agency with such available information relevant to minimizing the radiological consequences in those States "

Article 5 of the Convention defines the information which the notifying State Party must provide This State must also "respond promptly to a request to further information or consultations sought by an affected State Party with a view to minimizing the radiological consequences in that State" (Art 6) The Agency is responsible for the receiving of notifications and information Finally, paragraph 2 of Article 5 also requires from States that "such information shall be supplemented at appropriate intervals by further relevant information on the development of the emergency situation, including its foreseeable or actual termination"

Thus, early information on the occurrence or even the threat of a nuclear accident will allow preventive measures to be taken in order to minimize the radiological consequences in other states It will also lead to the development of an intervention strategy consisting of the adoption of preventive measures in matters of safety and radiation protection

*2 Safety measures for protection against radiation*

The use of nuclear power sources in outer space entails radiological hazards Such hazards may be the result of a partial dispersion of radioactive materials in the atmosphere, or from the crashing on earth or at sea of radiological debris In order to handle these hazards, first of all technical measures need to be taken, such as providing the satellite with an automatic security system allowing the reactor to be separated from the space object and to be boosted towards a "safe" orbit, sufficiently high to allow the nuclear material to disintegrate Another measure would be to provide the satellite with a system of containment of nuclear power for intact landing In fact, all technical precautions to

eliminate or minimize radioactive contamination in case of an incident at the launching during the mission or during the return of the satellite must be taken Beside these technical measures, appropriate radiation protection measures must be taken to protect the public and the environment, both under normal and accidental conditions of use of NPS

When using space objects with nuclear power sources, states should see to it that such use is in conformity with the existing and internationally recognized basic standards relating to radiation protection In particular, the radiation risks should comply with the recommendations established by the International Commission on Radiological Protection (ICRP) Until now there has been much concern with the prevention of nuclear accidents on earth and sea International standards have been established by specialised agencies of the United Nations (IAEA, WHO, ILO, IMO, UN Scientific Committee for study of atomic radiation effects) and by regional organisations (OECD, Euratom) This has been done in co-operation with the ICRP which is a non-governmental independent specialised organisation which has been able, through its moral and scientific authority, to accomplish an immense task in the field of harmonisation of the various regulations The recommendations of the ICRP should therefore be the basis of appropriate protection measures against radiation in case of the use of NPS in space Even if these recommendations have no legal binding force for the States Parties they, as well as other international organisations concerned by this matter have in fact incorporated them in their national or international legislation and apply them in their day-to-day operations

The previous general recommendations of the ICRP concerning exposure to radiations dated from 1977 Since then however radiation protection has undergone major developments and a revaluation of the risk factors related to radiation was therefore required In order to take account of new scientific data and notably of the lessons learned from the Chernobyl accident, the ICRP began a general review of its recommendations in 1987 This review led to modifications of the basic system for the limitation of radiation levels, and in particular to a reduction of the limits of those levels actually in force for workers and population In 1991, the review resulted in recommendations for new exposure levels to ionizing radiations[8]

The recommendations on radiological protection of the ICRP are based on the idea that States should (a) adopt no practice unless its introduction produces a positive net benefit, (b) keep all exposures as low as reasonably achievable, economic and social factors being taken into account, and (c) not permit that the dose equivalent to individuals exceed the limits recommended for the appropriate circumstances by the Commission[9] What are these limits?

According to the guidelines relating to the exposure of the public to radiations, the ICRP recommends 20 milliSievert (mSv)[10] as annual maximum dose equivalents originating from all artificial radiation for workers, and 1 mSv[11] for the public The adherence to these basic radiation protection norms would thus imply that the launching authority takes care that the exposure to radiation during all phases of the functioning of the space object including a possible accident, does not exceed the dose of 1 mSv per year for the population in general Of course, in view of the specific characteristics of the use of NPS in space, appropriate measures need to be taken for adequate radiation protection during all phases of an orbital mission Such measures should take into account the appropriate

objectives of radiation protection for the public as established by the ICRP This is the specific task of a working group of the Scientific and Technical Subcommittee of COPUOS

Thus, in order to protect individuals, collectivities and the biosphere against radiological hazards, States which launch or exploit space objects carrying NPS must comply with the existing nuclear legislation, viz the relevant international directives which are generally accepted in the field of radiation protection

Legal obligations concerning other safety standards can be found in the international law of the sea for the case of radioactive pollution of the seas, and in the treaties governing the activities of states in outer space, and of course in international environmental law[12]

As far as risks of radioactive contamination of the sea by the crashing of radioactive space debris is concerned, only the 1958 Convention on the High Seas provides in its Article 25 that States should co-operate with the competent international organisations in taking measures for the prevention of pollution of the seas resulting from any activities with radioactive materials However, there are no specific provisions on radioactive pollution in the 1982 Convention on the Law of the Sea, apart from the general provisions of Part XII of the Convention concerning the protection and preservation of the marine environment, which aim at preventing, limiting and managing pollution of the marine environment[13]

Regarding the risks of contamination of the outer space environment and the earth environment, Article IX of the 1967 Space Treaty requires that States Parties conduct their space activities "so as to avoid their harmful contamination and also adverse changes in the environment of the earth" In addition, the provisions concerning the moon and other celestial bodies as contained in article 7 of the 1979 Moon Agreement require States Parties to notify in advance the Secretary General of the United Nations of "all placements by them of radioactive materials on the moon and of the purposes of such placements" Furthermore, a procedure for advance international consultations is provided, in case a planned activity or experience "would cause potentially harmful interference with activities of other States Parties"[14]

All the rules and measures of precaution we have just mentioned and which specifically concern the information that must be provided at the international level before an accident occurs, are of fundamental importance for managing the consequences and measures that need to be taken in a post-accident situation It is clear that some of them could be considered both as pre- and as post- accident measures We may think here of the information that must be provided when the satellite is about to re-enter the earth's atmosphere in an uncontrolled way, as described above We may also think of the assistance that must be provided to States which might be affected by the landing or crashing of the space object We will deal with these post-accident measures in the second part of this article under the general heading of "emergency measures", whereas the third part of the article will concern questions of liability and reparation of damage

## II EMERGENCY MEASURES

### 1 The Principles

In addition to the aforementioned obligations of information and notification, it appears logical that States which launched a space object with an NPS and retain control over it should assist States that might be affected by a possible accident, by taking the necessary precautionary measures and by preparing the search and recovery of the source and the protection of their population This seems even more logical for States which are members of COPUOS, because it is exactly in these two fields, "notification of return" and "assistance to States", that this body could agree by consensus on the adoption of two principles in 1986[15] These two principles are in fact a codification of pre-existing legal obligations

The applicable rules regarding the obligation of assistance and the planning of emergency measures can again be found in both space law and nuclear law This will be shown by a short review of the principal treaties actually in force

Since most countries, and in particular developing countries, lack tracking facilities, one of the first obligations of assistance recognized by these treaties is that the launching state and all other states who do have such facilities are charged with the identification and monitoring of any space object of a hazardous or deleterious nature that might affect states located along its orbital trajectory This obligation is partly provided by Article VI of the 1975 Registration Convention If the said object crashes on earth, this obligation should be linked with the obligation of Article 5(4) of the 1968 Agreement on the Rescue of Astronauts and the Return of Objects Launched into Outer Space This Article states that "a Contracting Party which has reason to believe that a space object or its component parts discovered in territory under its jurisdiction or recovered by it elsewhere is of a hazardous or deleterious nature, may so notify the launching authority, which shall immediately take effective steps to eliminate possible danger of harm" Finally, Article XXI of the 1972 Convention on international liability establishes the principle that in case a State has suffered damage caused by a space object "presenting a large-scale danger to human life or seriously interfering with the living conditions of the population of the functioning of vital centers, the States Parties and in particular the launching State, shall examine the possibility of rendering appropriate and rapid assistance to that State at its request

These provisions are all based on the more general provisions of Article IX of the Space Treaty, which provides that "in the exploration and use of outer space States Parties to the Treaty shall be guided by the principle of co-operation and mutual assistance" They are also in conformity with the general principles of international law concerning humanitarian assistance It must however be noted that these various provisions also apply to each space object which has suffered damage and has already crashed on earth They therefore require clarifications and fuller information, which was done by consensus within COPUOS in 1986 It is clear that satellites with NPS are space objects of a "hazardous and deleterious" nature But in view of their nuclear power supply they also constitute a specific category whose consequences for the environment in case of an accident, as we have seen are similar to those of an accidental release of radioactive

materials from land-based nuclear installations Therefore, while preserving their specific space character, regarding the applicable law they are also - to a certain degree - subject to the rules of nuclear law

*2 Crisis Management*

As soon as the warning about the breakdown of a satellite with an NPS and about the possible threat of a nuclear accident has been given, the international information measures as described above are applied Also, the emergency intervention plans must be activated immediately

*- Emergency intervention planning*

In April 1989, an OECD Nuclear Energy Agency Expert Group carried out a study on "emergency planning and preparedness for the re-entry into the atmosphere of nuclear powered satellites"[16] One of the conclusions of the meeting was that the "efficiency of the emergency response in case of an accidental re-entry depends on several factors of which two of the most important are

- the accuracy of the predictions of the possible impact area, and

- the availability of technical information concerning the radiation source "

Concerning this last point, it is known that two types of nuclear satellites have already been launched into outer space nuclear reactors and radioisotope generators (RTG) The current design policy of RTGs is to contain the radioisotope in all foreseeable conditions during a space mission The main radiological hazard actually derives from the fission products produced during reactor operation Thus, several accident scenarios can be envisaged, and they must all be considered in the elaboration of emergency plans

Contrary to land-based nuclear facilities whose locations are well-known, the location of an NPS accident cannot be predicted until shortly before the impact, and even then with very limited accuracy Therefore, it is far more difficult to plan and prepare organisations for an event which may occur anywhere within the country or which may even concern many neighbouring countries, taking into consideration that debris in the form of radioactive fragments could be dispersed over a very large area By their fixed location, land-based reactors allow, on the contrary, for a clear delineation of the area immediately affected The infrastructure to support the emergency response can be well defined, with national or even local jurisdictions often playing a major role In case of an NPS accident, search for radioactive debris that could be dispersed over many thousands of square kilometers constitutes a tremendous task which requires a different strategy and equipment than that used for nuclear power station accidents Independently of a planning process for an NPS accident adopted on a national basis, measures are likely to be taken on a regional or worldwide basis in the framework of conventions related to assistance This fact may cause requests for co-operation or assistance enlisting specialized talents, expertise and equipment Intervention measures in case of NPS accidents therefore fall within the scope of the general planning of nuclear emergency measures at the national level[17], but recourse to international co-operation proves absolutely essential (*cf* the Cosmos 954 case)

For example, what would happen if radioactive debris fell on the European continent and affected especially France? Of course, the French procedures for rescue in case of a nuclear accident would be activated This plan for immediate action, which is called a special intervention plan, is in fact an adapted version of the general plans for the prevention of catastrophes, the so-called ORSEC plans, which are in force in France since 1953 They were further specified and supplemented after the Chernobyl accident in 1986[18] It goes beyond the scope of this paper to discuss this procedure in detail It is however important to note that after the threat of the crash of Cosmos 1900 in October 1988, special measures were added to the French intervention plan, in order to cope with this type of accident both in terms of locating and recovering the debris First of all, there is an information system about nuclear accidents which occur in France and abroad (and which are known either through the IAEA, the EEC or a neighbouring country) This information is centralized at the General Secretariat of the Interministerial Nuclear Safety Committee Once the information is obtained, the affected areas must be located For this purpose, a special detection procedure has been established which relies heavily on aerial surveys, in particular helicopters belonging to the Civil Security Directorate and the Army This procedure completes the traditional land-based fixed and mobile detection measures of the Central Service for Protection against Ionizing Radiation (SCPRI under the Health Ministry) and the Civil Security Directorate (under the Ministry of Interior) After the search for radioactive or suspicious debris has been completed with the help of the abovementioned specialized airborne means, the Atomic Energy Commission (CEA) locates the debris, measures and controls the level of radioactivity removes the debris and stores it in a secure place, and finally carries out a health control of the population likely to have been exposed to a significant amount of radiation The recovery and health intervention measures to be applied consist of the current measures carried out by the Civil Security, the CEA and the SCPRI, in particular the availability of mobile radiological intervention teams (CMIR)

- *Mutual international assistance*

In the field of international co-operation, France or any other State which has signed bilateral or multilateral agreements on mutual assistance in the nuclear field may apply for assistance involving, for instance, specialist personnel or equipment Such a request will likely be based on the Convention on Assistance in case of a Nuclear Accident or Radiological Emergency concluded under the aegis of the IAEA on 26 September 1986[19] This Convention in fact creates an international framework to facilitate the prompt provision of such assistance directly among the States Parties or through the IAEA, and by the Agency and other international organisations

As is the case for the Convention on the Early Notification of a Nuclear Accident the field of action of this Convention is not limited to accidents with land-based nuclear facilities but extends to all nuclear activities It thus covers not only "nuclear accidents" but also "radiological emergency situations" For B Moser[20] the notion of "radiological emergency" comprises less than that of a "nuclear accident", because it also covers a phenomenon which has as yet probably never resulted in any damage even though it could possibly cause it We will not go into a detailed analysis of this Convention and its application to a nuclear accident caused by the crash of a space object with NPS on earth This has been done in an excellent way in various papers by Dr A Terekhov[21]

We will only recall here that even if paragraph 1 of Article 2 provides an affected State with a right to request assistance, it does not in any way oblige the State responsible for the nuclear accident to offer such assistance It is therefore a sovereign right of the victim State to choose the State best able to provide assistance, whether or not this State is the launching State It is nevertheless necessary to draw a parallel with the abovementioned provisions of the space treaties These provisions attribute an important, albeit not compulsory[22], role to the launching State, which is the liable State

We finally have to note the important role which the Vienna Assistance Convention attributes to the IAEA, to co-ordinate and facilitate mutual co-operation in case of emergency assistance and to offer, if need be, technical assistance, particularly in the form of expert services and personnel training (cf Art 2 para 6 and Art 5) This IAEA training programme as well as its role in the elaboration of emergency intervention plans which it has assumed for a long time in accordance with its Statute[23], are as we know essential for the counter-measures that need to be taken in order to minimize the exposure of the public to an accidental release of radioactive material The basic principles it adopted for the planning of an intervention are also based on the recommendations of the ICRP on the protection of the public in case of a radiological accident [24] Furthermore, other international organisations competent in the field have also adopted guidelines (WHO 1984, EEC 1982, )[25]

Of course, all these operations for detection, search, recovery, sanitary intervention and communications, carried out with or without international assistance, generate considerable costs for the States affected by the accident These costs will be added to the request for compensation of damage suffered, which will, should the occasion arise, be addressed to the liable State in the form of a claim for compensation This last question leads us to the third part of this article, which deals with liability and compensation

## *III LIABILITY AND COMPENSATION FOR DAMAGE*

The question of whether or not the issues of assistance and liability should be linked is in fact a controversial one and has not yet been answered in a satisfactory way Moreover, the settlement of the Canadian-Soviet case concerning Cosmos 954 has not really solved the matter [26]

What do the treaties say about the problem of reimbursement of costs relating to operations for the search, recovery and return of a space object with an NPS which accidentally crashed on earth?

According to Article V para 5 of the 1968 Rescue Agreement, the launching State appears to be liable to pay for such expenses only if it requests the return of the material from the State which has recovered it

If we put ourselves in the context of a nuclear accident or a radiological emergency situation caused by a satellite, and if the victim State were to request the assistance of a State party to the IAEA or another international organisation on the basis of the 1986 Vienna Convention, Article 7 para 1 states that such assistance may be provided without cost and that for this matter as well as other relevant matters the special needs of developing countries and countries which do not have nuclear facilities will be taken into

account Paragraph 2 of this Article 7 nevertheless provides the conditions for the reimbursement of costs incurred by the assisting party, when "assistance is provided wholly or partly on a reimbursement basis"

Many legal scenarios are therefore possible depending on the type of accident involved, the states concerned and the claims presented However, this author believes that the question of the costs of operations for the search, recovery and possibly return of the space object need to be dissociated from those incurred for the damage to the environment and the population

We are concerned here with matters of international liability and compensation for damage which fall under the rules of existing space law, and in particular the provisions the 1967 Space Treaty and the 1972 Liability Convention

Articles VI and VII of the Space Treaty establish, in general terms, the international liability of states The 1972 Liability Convention specifies that "a launching state shall be absolutely liable to pay compensation for damage caused by its space object on the surface of the earth or to aircraft in flight"(Art II), and that the compensation "shall be determined in accordance with international law and the principles of justice and equity, in order to provide such reparation in respect of the damage as will restore the person state or international organisation on whose behalf the claim is presented to the condition which would have existed if the damage had not occurred" (Art XII)

The 1972 Convention thus applies in general as soon as a malfunctioning satellite causes damage to the territory of another State Party But it is not clear whether nuclear hazards such as those caused by the launching of nuclear reactors into outer space are covered by the Convention First of all, it must be noted that the Convention contains no exception concerning the type of energy supply which is used On the other hand, the term "damage" is defined in Article I(a) of the Convention as "any loss of life personal injury other impairment of health or damage to property", and no mention is made of damage to the environment or nuclear damage Nevertheless, this definition is sufficiently vague and lacking in precision to admit that it covers "nuclear damage" In that sense an agreement has been obtained at the COPUOS Legal Subcommittee after discussions that have opposed, during a long time Socialist countries (which were against the insertion of nuclear damage) and the majority of other members (which were in favour of the insertion)[27] So in the case of a nuclear accident which causes damage to the environment (that is to say damage to property) or to the population, compensation shall be determined in accordance with international law and with principles of justice and equity and shall be based upon the principle of *restitutio in integrum* (so as to restore the condition that existed before the incident occurred)

In this perspective, one might conclude that this compensation also covers the expenses incurred for search, recovery and cleaning up of the radioactive materials Incidentally, all proposals for the wording of principle No 9 relating to compensation which were presented to COPUOS included a clause to that effect[28] However since doubt arose during the negotiations ar ose during the negotiations about the applicability of the Space Liability Convention to nuclear damage[29] and since the Soviet-Canadian Protocol on the Cosmos 954 case did not refer explicitly either to the direct damage or to the notion of liability, one may wonder whether it would not be convenient to refer also to the application of international conventions regulating civil liability in case of a nuclear

accident[30] and particularly the provisions of the 1963 Vienna Convention on Civil Liability for Nuclear Damage Without going into the details of the field of application of these Conventions, it must be noted that the case of damage caused by a nuclear propulsion system of a space object does not fall within the scope of either Convention The Vienna Convention of 1963 is not applicable and it would have to be modified in order to include this particular case The foregoing would mean that a special regime should be established for so-called nuclear damage caused by space objects This would however be contrary to the interests of the victim, because nuclear law establishes a liability regime which is more favourable to the responsible party (in particular because the liability is limited) than the system of space law (which considerably limits the possibility for exoneration, since the only way for a launching state to be exonerated from its liability is to prove the victim's fault)[31] Nevertheless, in case of uncertainty about the possibility for the victims to benefit from the application of these specific Conventions, they can always seek compensation on the basis of the general principles of international law But still, clarifications are required, see on this point principles Nos 8 and 9 of the project of the Legal Subcommittee of COPUOS

*CONCLUSION*

After this short review of the various legal instruments in force governing the space activities of states as well as the rules of nuclear law that might provide answers to the problems posed by the use of satellites with NPS which may crash on earth, we may conclude that such use does not take place within a legal vacuum An important body of rules already exists, but these rules are very general, incomplete and badly adapted to the specific hazards which the use of nuclear energy in space entails for man and the environment The time has come to revise and reinforce this existing body of rules The UN project for a code of conduct provides a step in the right direction, but it is significant that the problems which this project encounters concern the norms based on scientific and technical data such as the principle relating to "safety evaluation", or that concerning "instructions and criteria for safe use" In this respect, we must remain optimistic, because the elaboration of international norms concerning hazards caused by the use of nuclear energy for terrestrial applications has also taken may years, and these rules are still continuously revised and updated

***Notes and References***

1 Several studies have already been published *Cf* especially He Qizhi, "Towards a new legal regime for the use of Nuclear Power Sources in Outer Space", in *Journal of Space Law*, Vol 14, No 2, 1986, pp 95-112, C Q Christol, "the use of an NPS in Outer Space", in *Zeitschrift fur Luft- und Weltraumrecht* No 1 1981, p 47 et s , N Jasentuliyana, "Multilateral negotiations on the use of nuclear power sources in Outer Space", in *Annals of Air and Space Law*, Vol XIV, 1989 pp 297-338, and IISL Proceedings (Colloquium Lausanne 1984, Malaga 1989, Montreal, 1991)

2 *Cf* V Kopal "The use of nuclear power sources in outer space a new set of United Nations Principles?" in *Journal of Space Law*, Vol 19, No 2, 1991, pp 103-122

3 *Cf* UN Doc ST/SG/SER E/176 ADD 1 18 May 1988 However the launching state is obliged, according to the 1979 Moon Agreement (Art 7 2) to give advance notification of the use of an NPS on board a space object launched to the Moon or other celestial bodies

4 *Cf* UN Doc GA A/AC 105/370 30 May 1986

5 *Cf* UNGA A RES/33-16 10 November 1978

6 Convention signed on 26 September 1986, entered into force on 27 October 1986 *Cf* texts in Supplement to *Nuclear Law Bulletin* No 38, December 1986

7 See the excellent analysis of B Moser, "The IAEA Conventions on Early Notification of a Nuclear Accident and on Assistance in case of a Nuclear Accident or Radiological Emergency" in *Nuclear Law Bulletin*, No 44 December 1989 pp 10 *et seq*

8 *Cf Le Monde*, 14 June 1991, and *Nuclear Law Bulletin* No 47, June 1991 p 66

9 ICRP-60, *Recommendations of the ICRP*, Publication No 60, Oxford, Pergamon Press, 1991

10 The biological effect of radiation is expressed in Sieverts (Sv) or milliSieverts (mSv) This effect, named "dose equivalent", is calculated from the absorbed dose, after a correction is applied which takes into the account the type of radiation and its location in the body

11 The new recommendations of the ICRP especially concern quantitative modifications of the 1977 recommendations The dose limit has changed from 50 mSv to 20 mSv on average per year for workers, and from 5 mSv to 1 mSv for the public, this dose may however increase to 5 mSv for 5 years under particular circumstances Moreover, in case of an accident, these 1991 recommendations introduce a new concept, namely a multidimensional approach which requires, when determining which measures should be taken a balancing of advantages and disadvantages which the various measures of protection of the population may entail This approach leads to a distinction of levels of exemption and intervention with specific restrictions

12 Cf A Ch Kiss *Droit international de l'environnement* Paris, Pedone 1989 349p in particular "The struggle against several forms of pollution" pp 151-180 and P M Dupuy & M Rémond-Gouilloud, "La préservation du milieu marin in *Traité du nouveau droit de la mer* Paris, Economica 1985 pp 979-1046

13 *Cf* for example Article 198 on "the notification of an impending risk of damage or of effective damage of the marine environment"

14 On the protection of the space environment, see K H Bockstiegel *Environmental aspects of activities in outer space* Studies in air and space law Vol IX C Heymans Verlag 1990 319 p , see also M Bourély "Le droit de l'environnement spatial" in *Le droit de l'espace aspects récents* Paris Pedone 1988 pp 299-314

15 *Cf* UN Doc A/AC 105/379, Annex II 1986 pp 17-18

16 *Cf Emergency preparedness for nuclear powered satellites* (Stockholm, 24-26 April 1989) Paris, OECD 1990 103 p

17 Annexes to the aforementioned OECD report (*supra* note 16, at p 67 et seq ) contain details on the "national procedures for responding to nuclear powered satellite accidents" for the following countries Canada, Germany, Finland, France, Italy, Sweden and United Kingdom

18 *Cf Enerpresse* no 5317 6 May 1991, 7p

19 The Convention entered into force on 26 February 1987 Text published in Suppl to *Nuclear Law Bulletin*, No 38, December 1986 France approved these two IAEA Conventions on 6 March 1989

20 *Cf* B Moser, *op cit , supra* note 7

21 *Cf* especially his report to the Brighton Colloquium *The 1986 IAEA Conventions on nuclear accidents and the consideration of the use of nuclear power sources in outer space in the Legal Subcommittee of COPUOS*, AIAA, 1988 pp 403-410

22 *Cf* the Cosmos 954 case, where Canada called for American assistance for the search and recovery of radioactive debris, rather than that of the USSR, which was the launching State liable for the accident

23 *Cf* IAEA Safety Series No 55 (1981), No 72 (1985), No 81 (1986), and H E Collins & B W Emerson, "The Agency's role in emergency planning and preparedness for nuclear accidents" in *IAEA Bulletin* Vol 25, No 3, 1983, pp 14-19

24 *Cf ICRP-40, Protection of the public in the event of major radiation accidents principle for planning*, Publication No 40 Oxford Pergamon Press, 1984, analysed in the abovementioned OECD report, supra note 16, p 44

25 *Cf* , specifically for the European regional level, the study of the European Communities *Radiological protection criteria for controlling doses to the public in the event of accidental releases of radioactive material* EEC Brussels, 1982

26 In the settlement of this case, Canada based its claim to the Soviet Union on provisions of the Liability Convention and obtained compensation (approximately 50 per cent of the amount originally claimed), but the Soviet Union made the payment without however accepting liability

27 For a detailed report on several of the arguments that were used, see in particular W Foster "The Convention on international liability for damage caused by space objects", in *Canadian Yearbook of International Law*, 1972, p 155, and N Jasentuliyana, *op cit , supra* note 1 at pp 306-307

28 *Cf* UN Doc A AC 105/484 17 April 1991, Annex IV p 32-46 to the *Report of the Legal Subcommittee on the work of its 30th Session* (25 March - 12 April 1991)

29 The acceptance of the notion that nuclear damage was included was in fact rather tacit than explicit *cf* note 27

30 Conventions in the field of nuclear energy, Paris (1960) Brussels (1963) Protocols (1964, 1982), and Vienna (1963) On these Conventions cf J Hebert "Le risque nucléaire " in *Juris-classeurs* 1975, fasc 5 and P Reyners, "Regime special de responsabilité civile nucléaire" in IAEA *Regulation of nuclear activities*, Vienna 1986 (Legal Series No 13)

31 *Cf* our paper "Questions d'actualité en matière de droit de l'espace" in *Annuaire Français de Droit International* 1978 p 912, and J D Théraulaz *Droit de l'espace et responsabilité* Thesis Lausanne 1971, especially p 222, p 238

# Some Reflections About Law and Ethics

***A Swedish answer to Pierre Strohl's article "Radioactive Waste Management Ethics, Law and Policy"***

*By Lotta Westerhall**

*Introduction*

Pierre Strohl has written an interesting article entitled "Radioactive Waste Management Ethics, Law and Policy in Nuclear Law Bulletin No 46, December 1990 He used as a basis a report by Lars Persson on a seminar organised in 1987 in Sweden by KASAM ** This report, named "Nuclear Waste Management -- Ethical Considerations for the Law-maker" was also published in Nuclear Law Bulletin No 43, June 1989 Strohl says in his article that "ethical analyses are not able to resolve the uncertainties relating to long-term risks and can only help us define what standards of behaviour we should adopt here and now" (p 15) Without discussing the nature of the concept of uncertainties (solving them from a technological point of view with objective truth or from a personal purpose-creating point of view with the subjective truths), I agree with Strohl that ethical norms can help us define what standards of behaviour we should adopt here and now, and also that "the safety of individuals and the community requires a certain degree of stability both as regards the law and the instruments for implementing it" (p 20) The necessary continuous interaction between law and ethics has, however, too small a space in the article In the following I will try to explain my view of the interaction between legal norms and ethical norms First, however, I will remind the reader that there are many differences between the Swedish law system with its Germanic traditions and the Anglo-American case law system

*Crisis of Legitimisation*

There are several factors indicating that the traditional legal regulation in a society like Sweden is undergoing a crisis of legitimisation It is a common widespread opinion in Sweden that there is too much legislation The dominant political ideology, clearly visualized in the Constitution of 1974, demands that every public decision and every public measure involving the citizens' lives and freedom, must be supported by the written legislation, thereby being equipped with a "democratic legitimisation" Also, the lower instances in the hierarchy of authorities exercise a pressure on higher and more central authorities to supply rules or at least general outlines partly to avoid difficult problems of interpretation, partly to be able to justify their own executive power More and more often

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** KASAM Swedish Consultative Committee for Nuclear Waste Management

the legitimisation of "the people's will" is questioned A growing consciousness of the dangers of the oppression of the majority has been formulated in several quarters for instance in the alternative proposal of a Constitution published as number 1 in the Public Commissions of the Citizens [MOU* 1988 1] "The reflexive" or "the responsive law" is said to be the successor to the "Welfare State" This means a type of society in which the State - *instead of making a fine-meshed system of rules for the conditions of the people* and for the contents of public benefits - will provide the general rules, whereas the concerned citizens themselves decide which rules will be in force for them more directly The opinion of every interested person will be heard This will lead to non-bureaucracy, self-administration, privatization, etc

Let us look at the legal system we have today, which is conveyed by democratic ideology making an effort to give the acts special sanctity by referring to "the people's will" The principle of the sovereignty of the people is pronounced in the Constitution Act 1 1 "*All public power is exercised under the written laws*"

Even if the power of the legislation itself is legitimized with help from the ideology of "the people's will" this says nothing about the ideology behind the structure and the content of the legal system In a discussion you will quite often hear the statement that the law is ideologically impoverished Is that true?

*The Collective Feature of the Legal Rules*

In reply I would like to start pointing at *the collective feature* of the legal rules The laws concern many people, in most cases everyone included in the Swedish judicial system Of course, the norms are expressed in the relationship between people The relationship between people individuals or groups, is characterized by power and dependence The human being is by his nature tightly connected to collective ambitions There has always been a reference to ethical valuations when trying to protect the weak This is a characteristic of what we normally call "the legal State" which is based on "the ethical State" "The legal State" gives its citizens both security and insecurity Under the protection of the State the individual should be able to demand his/her rights The State will help the individual to obtain his rights and protection against injustice At the same time there is never an absolute guarantee that the State will not exceed its power However, the question of the ethical responsibility of society still is not quite an empty phrase *The collective responsibility is without any doubt connected with the idea of solidarity* The thought of solidarity is built on the opinion that people's conditions are changeable for instance, weak people's situations A large part of the legislation is just about this Our responsibility for weak people in society is based on the mutual dependence that characterizes our lives together with other persons This is why ethical and legal norms are so intimately bound together There are many examples of this Ethical norms like legal norms both show the two faces of morality namely legitimization of power and protection against power The norms are in everyday language, nothing more than rules or general outlines with the task of promoting a certain purpose or achieving an expected ideal, a goal Legal and ethical decisions are aimed at making well-considered settlements based

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* Note by the Secretariat MOU = Memorandum of Understanding

on enlightened and good grounds It is not just a question of intellectual handling of facts It is clear that there are many different valuations to consider There are normative concepts in the legal sphere as well as in the ethical sphere The connection between "ought to" and "be" and between valuing words and describing words is well-known

*Goal Rationality*

The main interest of "the legal State" is to solve conflicts in a uniform and just way in accordance with the words of the law, usually called "*norm rationality*" The welfare State on the other hand is characterized by "*goal rationality*" The welfare goals are the prints, not the norms themselves They do not have the purpose of solving conflicts but have been shaped to a *resource distributing* object, marking large parts of public law, for instance social law and environmental law We have so-called goal-paragraphs with strong ideological colour in a couple of acts, in which the respect for human dignity is a central factor The catalogue of freedom and rights in the Constitution is built on the principle of human dignity This value is a fundamental ethical concept meaning that every man has a value of her/his own which is independent of the qualities she/he has and independent of the outer circumstances under which she/he is living Implicit in the idea of human dignity there is also the notion that all men have an equal value This means that each individual will have the same human rights and the same possibility to have these rights respected, independently of physical, mental, and social conditions From a legal point of view society is a unit of solidarity including everybody "It is the environment that has to adapt to man and not the opposite" is a principle that social law is based upon

*The Application of Law*

The ethical dimension will be seen more clearly in the application of the law in which the idea underlying the legislation will find its concrete expression With legislation providing solely the general frame, it is in its application that the legal conditions are specified and will lose some of their various meanings and their vagueness Often, the process of implementation and application provides the person who will apply the law with several possibilities, and thus with possibilities to observe how the ethical principles influence the legal system in many ways There is quite a difference between legal application in routine cases and in "more difficult cases" The legislation in the field of nuclear law (like in many other fields of law) is full of "value-open" expressions, needing a well-developed ethical estimation scheme, deeply rooted in ethical fundamentals on which all civilised countries are based Valuation cannot be avoided when applying, for instance, the Swedish Radiation Protection Act Section 8 provides that radiation protection shall function "satisfactorily", Section 10 refers to "adequate" protection against injury to people and animals and damage to the environment, and Section 14 to the situation where the nuclear device is "rendered harmless" And in the Nuclear Activities Act valuations have to be made in order to decide when "evident reasons" for withdrawal of a licence exist

*Principles of Value and Rules*

What then is the difference between a principle of value and a rule? In a situation standardized by a rule, there are just two possibilities to follow the rule or not to follow

the rule Thus, the rule sets a limit - clear or vague - between the forbidden and the permitted, that which is commanded or that which is not If an action respecting a state of things is placed on the right side of the limit, the actual decree or prohibition is obeyed It does not matter how close to the limit the action or the state will be A rule qualifies certain acts as in accordance or in discordance with the rule There are just these two possibilities A principle of value, on the other hand, qualifies an action, a person etc as more or less good It is possible to grade a qualification

*To Cure or to Keep One's Eyes Shut*

Legislation concerning situations or risk in the long-term in the nuclear field has as mentioned already, many similarities to legislation in other fields for instance medical health care regulation The concepts of disease, risk of infection and suffering are important to analyse in the context of medical law but will also be useful in the context of nuclear law For all these concepts there are three different approaches namely the technological approach (objective truth), the classifying approach (social truth), and the personal purpose-creating approach (subjective truth) All three approaches influence each other The legal rule belongs to the classifying approach From a legal-administrative point of view, disease is, for instance, to fulfil the conditions of obtaining sickness allowance The social (and legal) truth about risks of infection create sharp limits, where reality is diffuse There are limits saying here we have an infected area here we do not have such an area In our culture with advanced techniques both in industrial production and social care, suffering is a situation that immediately calls for measures We have a low threshold of pain, which has the advantage that we do not accept any pain that we can do something about The disadvantages of this low threshold is that we just cannot stand suffering that cannot be removed or essentially mitigated The risk is that there will be such a general attitude towards suffering and death that they are not allowed to exist In the technological connection there is no knowledge about what to do with the pictures of the tragic nature of life when the programmes of measure are finished In many situations the alternatives seem to be either *to cure or to keep one's eyes shut* Society concentrates a great deal of suffering within closed institutions such as prisons, mental hospitals and other establishments, and the administrators of such institutions know how a technically-oriented opinion would react That the public be confronted with pain and suffering which cannot be prevented seems to be the harder alternative to that of having these closed worlds existing as they are

In conclusion, I think that it is very important to arrange such seminars as the KASAM Seminar, and from them to gain much knowledge of objective, social, and subjective truths, which can then grow and develop

# CASE LAW AND ADMINISTRATIVE DECISIONS

## *CASE LAW*

## United States

### *Should Tort Law Treat an Internal Exposure Differently than it Treats an External Exposure?**

Within the nuclear industry there is an acceptance that external radiation exposures to workers are a necessary element of running a nuclear plant No manager can expect to get necessary work performed during a brief outage without accepting a significant amount of person-rem to the workforce An expectation of zero external exposure to workers is unreasonable and unrealistic

Internal exposures do not follow this same pattern of logic and experience It is possible to use respiratory protection and anti-contamination clothing to yield a much greater defence against internal exposure than can be obtained against external exposure These health physics practices have become standard protective measures at nuclear facilities and are responsible for the fact that the vast majority of nuclear workers do not experience any appreciable measurable internal contamination An expectation of zero internal exposures is both more reasonable and more realistic

As more radiation cases are being resolved by the courts, the question is arising as to whether the law ought to treat cases involving an internal exposure differently than it treats cases involving an external exposure The first significant internal exposure case was the Silkwood case Karen Silkwood received approximately one-fourth of a maximum permissible body burden of radioactive materials, and the jury found that to be worth $10 5 million Most of the significant cases since Silkwood have been cases involving only an external exposure In *O'Conner v Commonwealth Edison*, a federal judge held that a

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utility's compliance with the Nuclear Regulatory Commission numerical dose limits found in 10 CFR Part 20 101 will insulate that utility from a negligence lawsuit On 26 April 1991, another federal judge extended this new legal doctrine to a case involving an internal exposure regulated by 10 CFR Part 20 103

*The Hennessy case*

Michael J Hennessy is a pipefitter and welder who worked for various contractors at Commonwealth Edison's nuclear power plants According to his film badges, he received the following whole-body external exposures 1 732 rem in 1979, 3 880 rem in 1981 1 470 rem in 1982, 3 025 rem in 1983, 3 940 rem in 1984, and 2 092 rem in 1985 He expressed no undue concern over these whole-body external exposures either at the time they were received or during the litigation Under the O'Conner doctrine, Commonwealth Edison could not be found negligent for allowing such exposures because they were within the federal regulatory limits [10 CFR Part 20 101]

In 1981, during routine exit whole-body count, the utility discovered that Hennessy had also received an internal contamination of 109 nanocuries of cobalt 60 Hennessy became alarmed and sought advice from utility health physicists as well as from the NRC onsite inspector as to the possible health consequences of such an internal contamination He was told that it was a minor amount and that he should not worry about it Nine months later, he saw his family doctor, complaining of gastric distress and expressing concern about the possible health consequences of radiation exposure Another year passed before he saw a second doctor and specifically expressed concern over his internal contamination Four years then passed before he returned to his family doctor with continued complaints of abdominal pain and concern over his radiation exposure At that time, an ulcer was identified, and his family doctor expressed the opinion that the ulcer had existed since his first visit and was caused by Hennessy's worry about his radiation exposure Meanwhile Hennessy had sued Commonwealth Edison (ComEd), claiming that he had suffered unspecified physical injury, emotional distress, and fear of cancer as a result of the utility's negligence

After years of litigation and extensive discovery, the United States District Court for the Northern District of Illinois dismissed Hennessy's lawsuit without allowing it to go to trial The Court wrote

> "Under the Code of Federal Regulations it is permissible for a worker to inhale specified quantities of radionuclides during a given quarter of the year The permissible quantity of cobalt 60 (known as the 'Section 103 Quantity') is 5670 nanocuries per quarter [10 CFR Part 20 103]
>
> On 11 March 1981 the amount of Hennessy's internal contamination was measured at 109 nanocuries
>
> According to the uncontested opinion of Dr John R Frazier, a ComEd witness, an internal contamination of 109 nanocuries of cobalt 60 will give Hennessy a '50-year committed dose' of 24 millirem

According to the affidavit testimony of another ComEd witness, Dr Eugene L Saenger, Hennessy's internal 50-year committed dose of 24 millirem exposure was very small and there is no possibility of adverse biological effects from such an exposure

Hennessy has indicated that he does not fear future injury or cancer from any of his external doses, totaling over 16 000 millirem (16 rem), but rather suffers emotional distress as a result solely of his concern about possible future effects from the 1981 incident resulting in 24 millirem of internal radiation dose exposure

ComEd focuses on the fact that Hennessy's level of contamination and exposure was well within the permissible dose limits established by the Nuclear Regulatory Commission That fact is significant if we, at ComEd's urging, accept that fact as undisputed and accept the federal limits as conclusive evidence of the standard of care owed to radiation workers such as Hennessy

[W]e now consider Hennessy's contention that compliance with the federal limits should only be considered as some evidence of the standard of care, but not as conclusive proof In support of that proposition Hennessy relies primarily on Silkwood

In a recent case in this district, however, a case that presented the same issue and the same objection from a plaintiff, Judge Mihm concluded that compliance with the federal limits should constitute conclusive evidence of the standard of care, rather than simply some evidence of care [citation omitted] In O'Conner, Judge Mihm carefully articulated reasons to support his holding and we find those reasons generally persuasive [citation omitted] Accordingly, we likewise conclude that compliance with the federal permissible dose limits, found at 10 CFR Part 20 103, should conclusively establish that the applicable standard of care was met in this case

Insofar as the Silkwood trial court's decision and the decision in Mallinkrodt may be read to allow recovery under state law based simply on evidence of a level of exposure less than that permitted by federal regulations, we respectfully disagree with those decisions "

*Discussion points*

The Court went on to discuss the ALARA* concept, the requirements for a valid emotional distress claim, whether an ulcer constitutes a sufficient physical manifestation of emotional distress to get before a jury, the elements for an increased risk of cancer

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* Note by the Secretariat ALARA = As Low As Reasonably Achievable

claim, one of the requirements for strict liability, and the claim that an internal contamination is a battery A discussion of the Court's comments on these other issues is beyond the scope of this article The items of key importance are that Hennessy adopts the O'Conner doctrine expands it to cover internal exposures and starts to undermine the very foundations of the Silkwood case That is why it is a significant step in the ongoing development of the law of radiation litigation

Some issues remain, however Will the O'Conner doctrine also be expanded to cover claims of genetically defective children whose parent received a permissible occupational radiation exposure? Will a clear and repeated ALARA violation which nonetheless results in a dose below the regulatory limits, fall under the O'Conner doctrine or be held to be an exception to that doctrine? If the Silkwood case were filed today, could it survive a motion for summary judgment in light of O'Conner and Hennessy? The law does not answer questions such as these in the abstract It answers them only in the specific factual context of whatever cases happen to come before the courts for resolution We will have to wait and watch how other courts resolve the specific cases before them as the new law of litigation develops

# *ADMINISTRATIVE DECISIONS*

## Switzerland

***Central Repository for Intermediate Storage of Radioactive Waste (1990)***

On 16 July 1990, the ZWILAG Zwischenlager Würenlingen Ltd Company submitted an application to the Federal Chancellery for a *general licence* for the construction of a repository for the *intermediate* storage of low, medium and high-level radioactive waste This Company is made up of Swiss nuclear power plant operators

ZWILAG has applied for a licence to construct its intermediate repository on the grounds of the Paul Scherrer Institute at Wurenlingen (Argau canton) This Institute is an establishment governed by public law (belonging to the Swiss Confederation) and under the Federal Polytechnic Schools Council It specialises in multidisciplinary research in natural sciences and engineering The Institute's research work also covers nuclear physics and nuclear technology (nuclear safety and radioactive waste disposal) Only certain premises of the Institute are classified as nuclear installations within the meaning of Swiss atomic legislation (see Nuclear Law Bulletin No 41)

ZWILAG has asked the Confederation to grant it surface rights* to the land of the Paul Scherrer Institute so as to build its intermediate repository

The general consultation procedure (individuals, cantons, communes and organisations) is in progress It is expected that the Federal Council will decide on the application early in 1993 and ask Parliament for its approval

***Muhleberg Nuclear Power Plant - Consultation by Vote of Bern Canton Electorate (1992)***

On 16 February 1992, the Bern canton electors opposed by 51 4 per cent against 48 6 per cent in favour the application of the Forces Motrices Bernoises (FMB), the operators of the Muhleberg nuclear power plant, for an unlimited operating licence as well a 10 per cent increase of its thermal power

The Government and Parliament of the Bern canton had given a favourable prior opinion on the application This public consultation is only consultative in nature and is not binding on the Swiss Government The Federal Council will have to take a final decision on FMB's application in the second half of 1992

The technical expert tests undertaken by the Principal Division for the Safety of Nuclear Installations (DSN) and the Federal Commission for the Safety of Nuclear Installations (CSA) have concluded in favour of the FMB's application

* Note by the Secretariat Surface rights to land intended for use as a building site which are granted by owner

# NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

## Belgium

### ORGANISATION AND STRUCTURE

***Act and Order Amending the Mandate of ONDRAF (1991)***

The National Body for Radioactive Waste and Fissile Materials (ONDRAF) was established by an Act of 8 August 1980, supplemented by a Royal Order of 30 March 1981 determining its duties and operating conditions (see Nuclear Law Bulletin No 27) An Act of 11 January 1991 amends the 1980 Act to redefine and clarify ONDRAF's mandate and duties (published in the Moniteur belge of 12 February 1991) The Royal Order of 1981 was also amended accordingly by a Royal Order of 16 October 1991 (Moniteur belge of 22 November 1991)

ONDRAF has been given new duties mainly regarding management of foreign waste on national territory (which it cannot undertake without prior authorisation by its supervisory authority, the Ministry of Economic Affairs), management of spent fuel and decommissioning of nuclear installations The purpose of the amending Act was also to secure financing of the safe management of nuclear waste, enriched fissile materials and plutonium-bearing material whose enrichment exceeds the level specified by Royal Order as well as that of fresh and spent fuel the use of which has not been decided The 1991 Act further provides for the financing of decommissioning operations, possibly through a Fund established in ONDRAF's account and for the constitution of funds to meet cases of bankruptcy or default by producers

The 1991 Royal Order amends and supplements the provisions of the 1981 Order dealing with the duties and resources of ONDRAF Its duties include, inter alia, treatment and conditioning of waste on behalf of producers without the necessary facilities, training of specialists for such work for the producers with such facilities, transport, storage and disposal of radioactive waste, transport and storage of certain enriched fissile materials and plutonium-bearing materials As regards decommissioned nuclear installations, ONDRAF must establish management programmes for the resulting waste and must also decommission a nuclear installation at the operator's request or if he defaults To carry out this work ONDRAF is financed by appropriations in the budget of the Ministry of Economic Affairs, by occasional subsidies and revenues for services rendered

***Creation of an Institute for Emergency Planning (1991)***

A Royal Order of 29 July 1991 (published in Moniteur belge of 14 September 1991) sets up a Higher Institute for Emergency Planning in accordance with national legislation

on protection against major industrial risks and European Community Council Directive 89/618/Euratom of 27 November 1989 on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency (the text of the Directive is reproduced in Nuclear Law Bulletin No 45, see also Bulletin No 48)

The Institute's duties include

- organising training for emergency planning and assistance,

- promoting the exchange of ideas on emergency planning between the authorities and operators of installations which could generate major risks, including nuclear installations,

- disseminating adequate and regularly updated information to persons involved in emergency assistance on the risks they incur and the protection measures to be taken

The Board of the Institute includes representatives of the different Ministries, regional authorities, various industries, as well as scientists and insurers

The Institute organises conferences, seminars, study groups and simulation exercises in performance of its duties

***Creation of a Commission for Assessing Nuclear Information (1991)***

A Ministerial Order of 12 November 1991 (published in Moniteur belge of 11 December 1991) sets up under the Ministry of Economic Affairs a Commission responsible for assessing information in the nuclear field

The Commission must ensure that the public is kept informed on the technical, health, ecological, economic and financial aspects of nuclear energy, and advises the Secretary of State for Energy on the conditions for informing the public and proposes methods for disseminating such information

The Commission is made up of Members of Parliament from constituencies directly concerned by nuclear installations, specialists in information technology and representatives of nature and environment associations, unions as well as scientists and economists

## RADIATION PROTECTION

***Royal Orders Relating to Emergency Plans for Nuclear Risks (1991)***

A Royal Order of 6 September 1991 (published in Moniteur belge of 5 October 1991) amends the Royal Order of 28 February 1963, as amended, laying down the general regulations on protection of the public and workers against the hazards of ionizing radiations The 1963 Royal Order has been amended to take into account the above-mentioned Community Directive 89/618/Euratom on informing the general public about health protection measures and steps to be taken in the event of a radiological emergency

To implement this amendment, another Royal Order was adopted on 27 September 1991 (published in Moniteur belge of 21 January 1992) establishing an emergency plan for nuclear risks on the national territory

The emergency plan is to serve as guidance for the protection measures to be taken whenever necessary It establishes the duties of the different services and bodies in accordance with their responsibilities under the national laws and regulations The plan which describes the general organisation, must be supplemented by intervention plans at the different action levels by the provincial authorities, the communal authorities and the various services and institutions concerned

This plan mainly concerns large nuclear installations and transport of nuclear fuels and radioactive materials, however, lower risks from other activities are also covered

# Brazil

## GENERAL LEGISLATION

### *Draft Legislation on the National Nuclear Energy Policy (1992)*

In a Message dated 18 February 1992 the President of Brazil presented to Congress draft legislation on the national policy on nuclear energy

The Bill establishes the principles of nuclear power development in Brazil and the orientation of work to this effect It provides in particular that work should be oriented to cover achievements in the overall nuclear fuel cycle through national technology This should include, inter alia, nuclear power plant projects nuclear materials production plant projects, promoting the use of nuclear technology for health, agricultural, industrial and environmental protection purposes, prospecting for uranium and establishing reserves ensuring the safety of nuclear activities, etc

The Bill also specifies that in the framework of international technological industrial and commercial co-operation the development of nuclear technology and industry should take into account a balance between technology and preservation of the environment

## NUCLEAR-POWERED SHIPS

### *Resolution on the Use of Brazil's Harbours, Bays and Territorial Waters by Nuclear-Powered Ships (1991)*

By Resolution No 04 of 20 November 1991, the National Atomic Energy Commission (CNEN) approved Regulations on the use of Brazil's harbours bays and waters by nuclear-powered ships (published in Diario Oficial of 16 December 1991)

The Regulations apply to all nuclear-powered ships, which must have been granted the authorisation to enter into national waters by the Brazilian Government They lay down the conditions for such entry, and in particular, the documentation to be provided, namely a nuclear safety certificate and an emergency plan, in addition to the technical specifications of the ship concerned

# Canada

## GENERAL LEGISLATION

### *Atomic Energy Control Regulations - Proposed General Amendments (1991)*

The public consultation period concerning the amendments to the Atomic Energy Control Regulations, CRC, c 365, and the consequential amendments to the Uranium and Thorium Mining Regulations, as well as to the AECB Cost Recovery Fees Regulations came to an end on 16 January 1992 The Atomic Energy Control Board has received a number of comments which will be considered for the version to be published in the Canada Gazette, Part II The general amendments will replace entirely the above-mentioned Regulations

The general amendments to the Regulations incorporate changes in the regulatory process that have developed since 1974, new provisions which address administrative law developments and technical changes in the requirements for radiation health and safety

## ORGANISATION AND STRUCTURE

### *Atomic Energy Control Board Cost Recovery Fees Regulations (1991)*

The above Regulations were again amended (see Nuclear Law Bulletin No 46) on recommendation of the Minister of Energy, Mines and Resources The amendment was published on 24 October 1991 (SOR/91-590, Canada Gazette Part II, Vol 125, No 23)

The amendment modifies the list of institutions exempted from paying cost recovery fees (licence fees) to the Atomic Energy Control Board

The exemptions now include educational and health care institutions as well as Departments

# France

## RADIOACTIVE WASTE MANAGEMENT

### *Act on Radioactive Waste Management (1991)*

The Act relating to research on radioactive waste management -- Act No 91-1381 -- was adopted on 30 December 1991 and published in the Journal officiel de la République française on 1 January 1992 The Act provides that in the management of high-level long-lived radioactive waste, consideration should be given to protecting nature, the environment and health, account being taken of the rights of future generations The Act establishes a programme of work and research in this respect and provides that the National Radioactive Waste Management Agency - ANDRA (see Nuclear Law Bulletin Nos 24 and 33) is responsible for the long-term management of radioactive waste ANDRA is a public agency henceforth under the supervisory authority of the Ministers for Industry, Research and the Environment

The text of the Act is reproduced in the "Texts" Chapter of this issue of the Nuclear Law Bulletin An analysis of its provisions will appear in the next issue of the Bulletin

# Germany

## RADIATION PROTECTION

### *Radiation Protection and Nuclear Safety Recommendations (1991)*

The Radiation Protection Commission (Strahlenschutzkommision), which is an advisory body to the Federal Minister of the Environment, Nature Conservation and Reactor Safety, issued recommendations on principles concerning the use of areas and material which are contaminated by the uranium mining activities of the former Soviet-German public limited company "Wismut" in the Länder Saxony and Thuringia (see note on the German-Soviet Agreement on that company in this issue of the Nuclear Law Bulletin)

The recommendations cover the following fields

- Recommendation of 24 July 1991 (Bundesanzeiger 1991 p 5684) on the use of contaminated sites and areas for industrial use,

- Recommendation of 21 November 1991 (Bundesanzeiger 1991, p 7858) on the use of areas for agricultural purposes for forestry use, for parks and residential purposes,

- Recommendation of 24 July 1991 (Bundesanzeiger 1991, p 5461) on the use of metallic scrap from mining facilities

The Reactor Safety Commission (Reaktor-Sicherheitskommission), which advises the Federal Minister of the Environment, Nature Conservation and Reactor Safety, issued a recommendation on 3 June 1991 (Bundesanzeiger 1991 p 4885) on the operation of the final repository for radioactive waste at Morsleben in the Land Sachsen-Anhalt (ERAM) The ERAM is the only final repository for low and medium level radioactive waste in Germany It was erected and operated under the terms of the nuclear law of the former German Democratic Republic For the time being, however, no radioactive waste can be disposed of at the ERAM due to a decision of the administrative court of Magdeburg which stopped the operation of the ERAM for formal legal reasons An appeal was lodged against this decision to the Federal Administrative Court (Bundesverwaltungsgericht), the final decision is expected in the course of 1992

### REGULATIONS ON NUCLEAR TRADE

#### *Amendments to the Foreign Trade Ordinance (1991-1992)*

The Federal Government issued several amendments to the Foreign Trade Ordinance The main changes concern Annex AL, the co-called Export List, which contains as part B the Nuclear Energy List There is also incorporated a new list of countries, to which special restrictions on foreign trade are applicable The amendments, inter alia, implement the new Co-ordinating Committee on Export Controls (COCOM) arrangements (Bundesanzeiger 1991 p 2941, 2942, 6473, 7729 (Annex to no 222a), 7997, 1992 p 513, 514)

### FOOD IRRADIATION

#### *Amendments to the Meat Hygiene Ordinance (1991)*

By Ordinance of 7 November 1991 (Bundesgesetzblatt 1991 I p 2066) the Federal Government amended the Meat Hygiene Ordinance of 30 October 1986 The amendment provides that the importation of meat treated with ionizing radiation or ultraviolet radiation is prohibited

## Greece

### RADIATION PROTECTION

#### *Regulations on Radiological Protection (1989)*

The above Regulations were approved by Ministerial Decision on 14 June 1989 (Decision No 14632/1416) and entered into force when they were published in the Official Journal of the Greek Republic, June 1991, Part B, No 539 Previous Regulations on radiation protection are thereby repealed, with the exception of those which refer to Euratom Directive 80/836, as amended by Euratom Directive 84/467, laying down revised

basic standards for the health protection of the general public and workers against the dangers of ionizing radiation These Regulations were made in implementation of those Directives

The purpose of the Regulations is to protect people, property and the environment against the harmful effects of ionizing radiation They apply to the production, import, processing, handling, use, storage, transport and disposal of natural and artificial radioactive substances, the use of apparatus producing ionizing radiation and any other activity which involves a hazard arising from such radiation

Part 1 of the Regulations deals with the principles of radiological protection and Part 2 deals with conditions governing the granting of licences for the activities covered by the Regulations The subsequent parts concern radiological protection requirements in connection with specific activities involving the use of ionizing radiation radiodiagnostic, medical and radiotherapy laboratories, laboratories for medical research, training and other non-medical applications such as industrial radiography, establishments with sealed sources and particle accelerators and finally, the management and disposal of radioactive waste

None of the above activities may be undertaken without a licence granted by the Ministry for Health for medical applications, by joint decision of the Ministry concerned and the Ministry for Industry, Energy and Technology for non-medical applications The Greek Atomic Energy Commission is competent for the import, transport, production, holding and disposal of radionuclides and fissile materials, as well as the import of equipment producing ionizing radiation for non-medical applications

The Atomic Energy Commission is also the authority responsible for matters concerning radiation protection This includes controlling implementation of the Regulations and introducing, where necessary, additional protection measures

The Regulations, which lay down dose limits for the population and exposed workers provide for fundamental principles governing protection of the latter who are classified into Categories A (who may receive a radiation dose greater than three-tenths of the dose limit) and B (those who will not receive such a dose) The principles also involve classification of the different work areas and implementation of control measures and monitoring relating to the different categories of workers and areas

The medical surveillance of exposed workers is carried out according to the principles governing occupational medicine generally and the special radiological protection principles Such workers must undergo a medical examination prior to employment and also periodical examinations in the course of their work Medical records are kept

The Regulations also provide for emergency plans in case of any radiological emergency situation which could seriously threaten the population The Ministry for Industry, Energy and Technology is the competent authority in this respect The emergency measures include restrictions on food, distribution of stable iodine and evacuation of the population if radiation doses are expected to exceed the permissible dose limits

# India

## FOOD IRRADIATION

### *Atomic Energy (Control of Irradiation of Food) Rules, 1990*

These Rules, which were made under the Atomic Energy Act (Act 33 of 1962), came into effect on their publication in the Gazette of India of 2 March 1991 They set out a system of licensing for operators of facilities for the treatment of food by radiation Licences are conditional on conformity with safety and efficiency criteria set out in the Rules Irradiation of food is permitted only if it is necessary for its preservation, protection against parasites or improvement in its hygienic quality, and must be carried out in accordance with the procedures and standards prescribed in the Rules

The Schedules to the Rules sets out, inter alia, the technological conditions for irradiation, the qualifications of personnel involved in the irradiation process and the general requirements for the process They provide in particular, that food should only be irradiated by exposure to cobalt 60 or caesium 137 gamma rays, to X-rays generated by sources operated at or below 5 Mev or electron beams with an energy at or below 10 Mev The absorbed dose must not exceed 10 kilograys (kGy)

# Italy

## RADIATION PROTECTION

### *Decree on Documentation Concerning Physical and Medical Surveillance (1990)*

Decree of the President of the Republic No 185 of 1964, the Italian radiation protection legislation, empowers the Minister of Labour to adopt specific conditions for keeping documentation on physical and medical surveillance of workers exposed to ionizing radiation, and also to approve models of the documents involved Accordingly, the Minister adopted Decree No 449 on 13 July 1990 setting out those conditions The Decree was published in the Official Gazette of the Italian Republic of 14 February 1991 and entered into force in August of that year

The Decree specifies where the documents must be kept, the information to be given in them regarding workers subject to regular dose monitoring, the doses received, etc The documents must also list the obligations of the qualified experts in radiation protection and approved practitioners in connection with such surveillance The Annexes to the Decree contain models of the documents to be used

This Decree provides for the last set of provisions to be made in implementation of Decree No 185

***Community Directive of 1989 on Informing the General Public in the Event of a Radiological Emergency (1992)***

Directive 89/618/Euratom of 27 November 1989 of the Council of the European Communities on informing the general public about health protection measures to be applied and steps to be taken in the event of a radiological emergency (see Nuclear Law Bulletin Nos 45 and 48) has been transposed into Italian law by an Act of 19 February 1992

That Act (No 142), published in the Official Gazette of 20 February 1992, contains a series of provisions to implement Italy's obligations as a Community Member State

# Kenya

## RADIATION PROTECTION

***Radiation Protection Act (1984)***

The Act aims at providing protection for the public and radiation workers by regulating the possession and use of devices or material capable of producing ionizing radiation The standards of radiation protection to be observed include any guidelines published by the International Commission on Radiological Protection, the International Atomic Energy Agency and the World Health Organization

The Act provides that licences are required for the production, possession, use, sale, disposal, and import or export of irradiating devices and radioactive material The holder of a licence must ensure that exposure to ionizing radiation is kept as low as reasonably practicable below the prescribed limits, and must also observe certain procedures including monitoring, training of staff and medical check-ups, as well as maintaining records Provision is made for inspection and inquiry by radiation protection officers to ensure compliance with the Act

The licensing system is administered by the Radiation Protection Board established by the Act, which is also responsible for maintaining a register of owners of irradiating devices, radioactive materials and other sources of ionizing radiation, and of premises licensed to dispose of radioactive waste In addition, the Board advises the Minister of Health on matters relating to radiation protection and radioactive waste disposal The Minister is empowered to prescribe standards and procedures for the purposes of the Act

# Mexico

## ORGANISATION AND STRUCTURE

### *Decree to amend the General Health Act (1991)*

The above Decree amended several provisions of the General Health Act and was published in the Official Gazette (Diario Oficial) of 14 June 1991 The amendment relating to nuclear activities concerns the licensing system for radiation sources It is provided that, henceforth, the prior licensing system by the competent health authorities applies only to establishments dealing with radiation sources for medical purposes A licence from those Authorities is also required for possession, trade, import, export, transport, use, etc of radiation sources for medical purposes

# Netherlands

## THIRD PARTY LIABILITY

### *Act to Amend the 1979 Act on Nuclear Third Party Liability (1991)*

The amendments to the 1979 Act made by the Act of 26 June 1991 were described in detail in the previous issue of the Bulletin The text of the 1979 Act, as amended, is reproduced in the Supplement to this issue of the Bulletin

# Portugal

## ORGANISATION AND STRUCTURE

### *Decree-Law reorganising the Nuclear Protection and Safety Bureau (1991)*

Decree-Law No 425/91 of 15 October 1991 restructures the Nuclear Protection and Safety Bureau (Gabinete de Protecçao e Segurança Nuclear - GPSN) to take account of its new responsibilities The Decree-Law was published in the Official Gazette (Diario da Repùblica - I Serie-A No 250) of 30 October 1991

The GPSN was set up by Decree Law No 548 of 31 December 1977 (see Nuclear Law Bulletin No 24) It is henceforth placed under the Ministry of the Environment and Natural Resources and has the following tasks

- Evaluate and monitor the radiological impact of nuclear and radioactive installations, including the management of radioactive waste and the mining and processing of radioactive ores,

- Evaluate and monitor the safety of nuclear and radioactive installations,

- Control that measures in the field of third party liability and nuclear non-proliferation are complied with,

- Co-operate with national and international authorities to respond to nuclear and radiological emergencies,

- Propose the preparation of legislation and regulations required to carry out its work

The GPSN is organised into two Directorates and three supporting services The Directorate for Research and Regulation and the Directorate for Operations are each divided into two Divisions the Technical Studies and Regulatory Studies Divisions and the Licensing and Inspection and Environmental Control and Radiological Emergencies Divisions respectively The support services cover planning, budget and technical assistance

# Romania

## REGULATIONS ON NUCLEAR TRADE

### *Order on Nuclear Export Controls (1991)*

The above Order No 40/1991 was jointly issued by the Ministers of Foreign Affairs National Defence, Industry, Trade and Tourism It provides for a system of control of the export of materials chemical and biological substances, installations and components, etc which could contribute to the proliferation of nuclear, chemical and biological weapons as well as of rockets carrying such weapons

In accordance with the Order, such materials, installations and substances cannot be exported or imported for purposes of export without a licence granted with due observance of the international agreements on non-proliferation to which Romania is a Party

The rules on nuclear export controls, annexed to the Order contain the fundamental non-proliferation safeguards principles which apply to nuclear transfers Also annexed is

a list of materials, equipment and technology, sensitive from the viewpoint of non-proliferation and on which there are export constraints

# Russian Federation

## ORGANISATION AND STRUCTURE

### *State Committee for Nuclear and Radiological Safety (1991)*

A Declaration of Orientation on National Regulations applicable to Nuclear and Radiological Safety on the Territory of the Russian Soviet-Federated Socialist Republic had been issued in November 1991 However, in view of the political and social changes since then, namely, the dismantling of the Soviet Union's administrative structures, the reorganisation of the Government of the Russian Federation and the extension of its jurisdiction in particular to all sources and technological processes using nuclear materials, atomic energy or radioactive sources on its territory, the national supervisory authorities were reorganised and the statute amended

Consequently, a State Committee for Nuclear and Radiological Safety (Gosatomnadzor) was established under the President of the Russian Federation and is the regulatory body for such questions Its mandate and competence were defined by Decree No 249 and Order No 137-rp issued by the President on 3 and 31 December 1991 respectively

The salient points of the Declaration of Orientation of the Gosatomnadzor, issued on 20 February 1992, are set out below

The preamble lays down the principles to be observed by those responsible for the applications of nuclear energy to establish efficient safety arrangements to ensure the protection of citizens, society and the State against the hazards of nuclear energy and ionizing radiation

The Gosatomnadzor will be responsible for preparing national legislation governing the production and use of nuclear energy and materials and radioactive substances It will be up to the Gosatomnadzor to organise and implement, at the national level, the regulation and control of nuclear activities both for peaceful and for military purposes It will define the safety principles and criteria, standards and rules as well as other regulatory measures, in particular, by establishing a licensing system for such activities as well as an inspection system It will also undertake independent studies in the field of nuclear and radiological safety and disseminate information on developments in that field

This means that, in effect, all sources and technological processes emitting dangerous rays will be transferred under the supervisory authority of the Gosatomnadzor, which will take the necessary safety measures in accordance with internationally acceptable criteria,

and will also make proposals to define and improve the legislative and regulatory framework for nuclear activities in the Russian Federation

The Declaration specifies that those persons, individuals or legal entities carrying out nuclear activities, must have the technical and financial means to conduct such activities in a safe manner and must have obtained a licence to do so from the Gosatomnadzor

Finally, the Declaration refers to the centralised system for the development and safety of the nuclear industry and nuclear applications which existed in the previous Soviet Union It specifies that, given the present situation in the nuclear energy field and its possible adverse effects from the safety viewpoint, the Gosatomnadzor is prepared to co-operate with the bodies responsible for regulation and control of nuclear activities in the other States in order to establish a common policy for the safe production and use of nuclear energy, nuclear materials and radioactive substances

## Spain

### *Decree on X-Ray Equipment for Medical Diagnosis (1991)*

This Royal Decree 1891/1991 of 30 December 1991 on the installation and use of X-ray equipment for the purposes of medical diagnosis was published in the Official Gazette of 3 January 1992 The Decree lays down the rules enabling government authorities to monitor the proper functioning of such appliances It takes account of the Council of European Communities' Directive 80/836/Euratom amended by Directive 84/466/Euratom on basic safety standards for the health protection of the general public and workers against the dangers of ionization and Directive 84/467/Euratom laying down basic measures for the radiation protection of persons undergoing medical examination or treatment (see Nuclear Law Bulletin Nos 26 and 34) The Decree provides for a register of firms authorised to sell and maintain medical X-ray equipment, and a register of the equipment installed It also sets out requirements relating to third party liability insurance, and to the qualifications and training of personnel operating the equipment

### *Regulation on Health Protection against Ionizing Radiation (1992)*

This regulation was approved by Decree 53/1992 of 24 January 1992 and published in the Official Gazette of 12 February 1992 The purpose of this new Regulation is to unite in a single instrument the existing rules on this subject contained in Decree 2519/1982 as amended by Decree 1753/1987 (see Nuclear Law Bulletin No 30 and 41), now repealed as well as to introduce certain modifications which have proved desirable in the light of the practical application of those rules

It is recalled that the 1987 Decree reflected the basic safety standards of the Euratom Directives Like that Decree, the new Regulation lays down the measures for protection of

the public and occupationally exposed persons against the dangers of ionizing radiation The Regulation is supplemented by Appendices providing for definitions of radiological, biological and medical terms, annual dose limits for the public and for occupationally exposed persons, etc

# Sweden

## THIRD PARTY LIABILITY

### *Amendment of Nuclear Liability Act (1991)*

The Swedish Nuclear Liability Act (1968 45), Section 17, has recently been amended again (the text of the Act, as amended in 1982, is reproduced in the Supplement to Nuclear Law Bulletin No 33)

The Act has now been amended as regards the maximum limit of the operator's liability for nuclear incidents The amount of liability for any one incident has been raised from 800 million SKr to 1200 million Skr per incident The Act (1991 1557) giving effect to this modification entered into force on 1 January 1992 As regards installations solely for the production, treatment or storage of unirradiated uranium, there has been no change, and the liability for this type of installation is therefore still limited to 100 million Skr

# Switzerland

## GENERAL LEGISLATION

### *Adaptation of Swiss legislation in regard to the European Economic Space Treaty (1992)*

The perspective of Switzerland joining the European Economic Space Treaty - which will bring together the European Economic Community Countries and the European Free Trade Association (IFTA) member countries including Switzerland - requires that its legislation be adapted

Section 5(3) of the Federal Act of 23 December 1959 on Atomic Energy will have to be revised so as to comply with the European Directive on free movement of capital At present Section 5(3) provides that the Federal Council may make the granting of a licence for construction or operation of an atomic installation subject to the condition that the applicant is a Swiss citizen and lives in Switzerland If the licence is applied for by a legal entity, the Federal Council may require that at least two-thirds of the members of the Board of Management be Swiss citizens and that the headquarters be located in Switzerland

This principle is repeated in a binding manner in Section 3(3) of the Federal Order of 6 October 1978 concerning the Atomic Energy Act, which provides that the general licence is only granted to Swiss citizens domiciled in Switzerland and to legal entities whose headquarters are in Switzerland, and under Swiss control This provision will also have to be amended to comply with the principle of free movement of capital

The Act on Nuclear Third Party Liability will only have to be slightly amended to conform to the Directive on Products Liability, which is associated with the European Economic Space Treaty

# United Kingdom

## TRANSPORT OF RADIOACTIVE MATERIALS

### *Radioactive Material (Road Transport) Act, 1991*

The Radioactive Material (Road Transport) Act 1991 came into force on 27 August 1991 The Act replaces earlier legislation dating from 1948 It enables the United Kingdom to give effect to the International Atomic Energy Agency's (IAEA) latest recommended Regulations for the Safe Transport of Radioactive Material

The new Act clarifies and extends the power of the Secretary of State to make regulations regarding, among other things, the design, labelling handling, transport and delivery of packages containing radioactive material and the placarding of vehicles transporting such packages The Secretary of State will be able to establish criteria identifying the circumstances where his approval is required for certain radioactive package types and shipments (The IAEA Transport Regulations require that certain package types and shipments should have approval from a designated Competent Authority before they are moved)

The Act gives the Secretary of State the power to appoint inspectors to assist him in enforcing the regulations Inspectors will be able to enter the premises and inspect vehicles and packages, in order to ensure that the regulations are being satisfied before the vehicles or packages actually reach the public highway The earlier legislation only allowed the entry and inspection of vehicles while on the public highway and of premises only after an offence had been committed on the highway Inspectors will be given the power to issue prohibition notices - either to stop the movement or prevent the continued movement of radioactive materials where the regulations either have or appear to have been contravened Inspectors will also have the power to issue enforcement notices to require recipients to remedy deficiencies or practices which could lead to a breach of the

regulations The Act will allow the prosecution of offenders either summarily or on indictment, depending on the severity of the offence

The Act extends the power of the Secretary of State to make regulations controlling the road transport of radioactive material He has not yet issued them however, such regulations are currently being prepared and are expected to be introduced shortly

# United States

## REGIME OF NUCLEAR INSTALLATIONS

### *Nuclear power plant licence renewal (1991)*

On 13 December 1991, the Nuclear Regulatory Commission (NRC) published in the Federal Register (56 FR 64943) a new Part 54 entitled Requirements for Renewal of Operating Licenses for Nuclear Power Plants, for inclusion in Title 10, Chapter 1 of the Code of Federal Regulations, and necessary amendments to 10 CFR Parts 2 and 50

These Regulations, effective on 13 January 1992, establish the requirements that an applicant for renewal of a nuclear power plant operating licence must meet and the information to be submitted to the NRC for review so that it may determine whether those requirements have been met and also set out the application procedures The Regulations are necessary so as to provide the regulatory basis for extending nuclear power plant operating licenses beyond 40 years

The licensing basis for a nuclear power plant during the renewal term will consist of the current licensing basis and new commitments to monitor, manage and correct age-related degradation

Licence renewal applications must be submitted 5 years prior to the expiry of the current operating licence The renewal licence will be effective on its issuance and will supersede the existing licence, it may be granted for a term as justified by the licensee, but may not exceed 20 years beyond the existing licence expiry date

### *Proposed Licensing Reform for Commercial Nuclear Power Plants (1992)*

In response to needs identified in the President's National Energy Strategy (NES), the United States Congress has under consideration reformation of the licensing procedures for domestic commercial nuclear plants The reforms would be accomplished by amendment to the Atomic Energy Act of 1954 (the Act) to provide for a combined construction permit and operating licence (combined licence) process, through which all safety issues would be resolved at a single adjudicatory hearing preceding the commencement of plant construction The proposed amendment summarised below, is included as Title IX, Sections 9101-9108 of the National Energy Security Act, introduced in the 1st Session of

the 102nd Congress on 28 February 1991 as S 1220 and reintroduced in the 2nd Session on 29 January 1992 as S 2166 S 2166 passed the United States Senate on 19 February 1992

As proposed, amended Sections 185 and 189 of the 1954 Act would

- Require the Nuclear Regulatory Commission (the Commission) to issue a combined licence upon finding reasonable assurance that the plant would be constructed and operated in conformity with the licence, the Act, and the Commission's regulations,

- Require the Commission to identify in the combined licence the inspections, tests, and analyses, including those applicable to emergency planning that must be performed by the licensee and the acceptance criteria by which the results will be judged,

- Require the Commission to find, prior to operation of the plant, that the acceptance criteria have been met and to provide advance notice to the public of fuel loading,

- Provide an opportunity for a hearing following procedures to be determined by the Commission in its discretion, upon a prima facie showing by an interested person (and answers thereto) that the plant does not or will not conform to one or more of the acceptance criteria and that the specific operational consequences thereof would be contrary to the adequate protection of the public health and safety, and

- Authorise plant operations to begin in situations where non-conformity issues are pending, if the Commission determines that there is reasonable assurance of adequate protection of the public health and safety in the interim

In 1989, the Commission promulgated regulations (Title 10, Code of Federal Regulations, Part 52 Subpart C) that permit a combined licence to be issued and provided for a second adjudicatory hearing of limited scope prior to commencement of plant operations, if genuine issues of material fact were raised By decision of the U S Court of Appeals for the District of Columbia in *Nuclear Information and Resource Service v United States Nuclear Regulatory Commission* (2 November 1990) the provisions limiting the scope of the second hearing were vacated On 27 March 1991 in response to the Commission's request, the full Court ordered a rehearing *en banc* in November 1991 on issues concerning the breadth and scope of the Commission's discretion in implementing provisions of the Act and vacated the 2 November 1990 judgment No decision as yet has been handed down The NES amendment would resolve many of the questions regarding the Commission's discretion, eliminate the re-hearing of issues at any informal hearing after completion of construction, and make clear that plant operations are to begin pending resolution of non-conformity issues that do not demonstrably involve questions of adequate protection of public health and safety

***NRC Policy on Co-operation with States (1992)***

On 25 February 1992, the NRC published in the Federal Register (57 FR 6463) an amendment to its Policy on Co-operation with States at Commercial Nuclear Power Plants

and other Production or Utilisation Facilities, published in 1989 The amendment allows State representatives (of the United States) in adjacent States to observe NRC inspections at licensed facilities These States are defined a States within the plume exposure pathway of a licensed facility in another State The plume exposure pathway - approximately a 10-mile radius - is classified as an Emergency Planning Zone (EPZ) for which planning is recommended to ensure that prompt and effective action can be taken to protect the public in the event of an accident

## REGIME OF RADIOACTIVE MATERIALS

### *Material control and accounting requirements for uranium enrichment facilities producing special nuclear material of low strategic significance (1991)*

On 31 October 1991, the NRC published in the Federal Register (51 FR 55991), amendments to its regulations in 10 CRF Parts 2, 40, 70 and 74 to include performance-based material control and accounting requirements that will apply to uranium enrichment facility licensees who produce significant quantities of special nuclear material (SNM) - fissile material - of low strategic significance The requirements in this amendment are similar to existing requirements that apply to licensees authorised to possess and use more than one effective kilogram of SNM of low strategic significance The amendments impose requirements to ensure that enrichment facilities produce only enriched uranium of low strategic significance as authorised

The amendments became effective on 2 December 1991

# INTERNATIONAL REGULATORY ACTIVITIES

## OECD Nuclear Energy Agency / International Atomic Energy Agency

***IAEA and OECD/NEA Member States Invited to Formally Adopt INES Scale***

Following a successful trial of the International Nuclear Event Scale (INES) in 1991 the International Atomic Energy Agency (IAEA) and the OECD Nuclear Energy Agency (NEA/OECD) invited their Member States in March 1992 to formally adopt the scale for use in classifying incidents and accidents at nuclear power plants Both agencies also invited all countries possessing other types of nuclear installations to participate in a one-year trial to test the use of the INES scale for categorizing any nuclear event

The INES scale was developed jointly by experts from the IAEA and the NEA/OECD to standardize the reporting of nuclear events worldwide and facilitate communication between the nuclear community, the media and the public A trial period for the scale's use was launched in March 1990 in participating Member States of the IAEA and the OECD The scale categorizes events from level zero for no safety significance, to level 7 for accidents with widespread health and environmental consequences Under the scale for example, the Chernobyl accident was rated level 7 and the Three Mile Island accident was rated level 5

While simple in concept, the INES scale has been shown to have a secure technical basis It has so far proved successful as a tool for providing prompt clear and consistent information on nuclear events, whenever and wherever they occur in Member states More recently, use of the INES scale to rate the level of the nuclear incident at unit-3 of the Leningradskaya nuclear power plant near St Petersburg in the Russian Federation (level 3 - - initial assessment, level 2 - revised assessment) helped to facilitate clear and concise communication on the incident between the nuclear community and the media

Thirty-two countries are presently participating in the INES Information System - the communication system built around the scale - ensuring the prompt dissemination of authoritative information on any nuclear reactor event for public information purposes

## International Atomic Energy Agency

### *IAEA Board of Governors Strengthens Nuclear Safeguards Inspection Regime (1992)*

The International Atomic Energy (IAEA) Board of Governors has agreed to a number of measures intended to strengthen the Agency's safeguards system, including the ability of the Agency to conduct special inspections and expanded requirements on the provision and use of nuclear facility design information

The Board, recalling its earlier discussion of this issue in December last year, reaffirmed the Agency's right to undertake special inspections in Member States with comprehensive safeguards agreements, when necessary and appropriate, and to ensure that all nuclear materials in peaceful nuclear activities are under safeguards

The Board further reaffirmed the Agency's rights to obtain and to have access to additional information and locations in accordance with the Agency's Statute and all comprehensive safeguards agreements

The Board, which met in Vienna from 24-26 February 1992, called on Parties to comprehensive safeguards agreements to provide preliminary information as early as possible on programmes for new nuclear facilities and activities, as well as modifications to existing facilities as soon as the decision to construct, to authorize construction or to modify a facility has been taken This information would be updated during project definition, preliminary design, construction and commissioning phases

The Board also addressed IAEA Secretariat proposals on reporting and verification of the export, import and production of nuclear material, of sensitive equipment and certain non-nuclear materials The proposals included measures under which States would provide the IAEA with information to enable it to verify that reported inventories in a given State are consistent with the State's declared nuclear activities The Board agreed to continue to review these proposals at its next meeting in June

## European Communities

### *Council Directive on the Supervision and Control of Shipments of Radioactive Waste (1992)*

On 3 February 1992, the Council of the European Communities adopted Directive 92/3/Euratom on the supervision and control of shipments of radioactive waste between Member States and into and out of the Community (published in the Official Journal of the European Communities No L 35 of 12 February 1992)

The Directive applies to shipments of radioactive waste whenever the quantities and concentrations exceed the levels laid down in Directive 80/836/Euratom laying down the revised basic safety standards for protection of the population and workers against the dangers arising from ionizing radiation, as amended

The Directive sets out a system of authorisation for such waste shipments It provides, in particular, that any person intending to ship out such waste - from one Member State to another - must apply for authorisation to do so from the competent national authority which, in turn sends this application for approval to the competent authority of the country of destination and, where applicable, to the country(ies) of transit Where radioactive waste is to be shipped from a third country to a Community Member State, the consignee must submit an application to the competent authority of that State as if he were the original holder of the waste, and his country the country of origin for the purposes of the Directive The Directive further instructs Member States not to authorise radioactive waste shipments in specific circumstances Member States must transpose the Directive into their domestic legislation by 1 January 1994

The text of the Directive is reproduced in the "Texts" Chapter of this issue of the Bulletin

***Commission Recommendation on Article 33 of the Euratom Treaty (1991)***

In accordance with the third paragraph of Article 33 of the Euratom Treaty, Member States must communicate to the Commission any national draft laws, regulations or administrative provisions transposing the Community Directives on radiation protection The Commission may, within a period of four months, issue recommendations on the national projects so as to harmonise them with other Member States' legislation and to ensure observance of Community law

The Commission adopted a Recommendation on 26 July 1991 (91/444/Euratom) regarding Article 33 of the Euratom Treaty to clarify the obligations of Member States in implementation of the Article (published in the Official Journal of the European Communities No L 238 of 27 August 1991)

The text of the Recommendation is reproduced in the "Texts" Chapter of this issue of the Bulletin

***Commission Regulation Establishing a List of Products Excluded from the Council Regulation on Conditions Governing Imports of Agricultural Products (Chernobyl Accident) (1992)***

Council Regulation (EEC) No 737/90 on conditions governing imports of agricultural products originating in third countries following the accident at Chernobyl listed those products which could not be imported given their contamination and also provided that

other products could only be imported if their contamination did not exceed certain specified levels (the text of the Regulation is reproduced in Nuclear Law Bulletin No 45)

Commission Regulation (EEC) No 598/92 of 9 March 1992 (published in the Official Journal of the European Communities No L 64 of 10 March 1992) lists in its Annex the products now excluded from the application of the above Council Regulation in view of the fact that they are not contaminated radioactively or that their radioactive contamination has now decreased to levels presenting a negligible risk to health

This Regulation entered into force on the third day following its publication in the Official Journal of the European Communities and is binding on all Member States

## WHO / IAEA / FAO

***Seminar on Harmonization of Regulations on Food Irradiation in Asia and the Pacific (1992)***

The World Health Organisation (WHO), jointly with the International Atomic Energy Agency (IAEA) and the Food and Agriculture Organisation (FAO) held the above Seminar in Kuala Lumpur, Malaysia from 20 to 24 January 1992

The purpose of the Seminar was to

- review the current situation in Asia and the Pacific concerning the enactment and enforcement of regulations on food irradiation,

- discuss technical issues facing national regulatory control authorities (including those involved in food regulation, control and safety) in introducing and implementing regulations based on the principles of the Codex General Standard on Irradiated Food and the recommendations of other international meetings related to the subject,

- exchange views on the development and harmonization of national regulations and the development of effective control procedures for ensuring that good irradiation practices are followed and that irradiated products are of acceptable quality, and

- familiarise the participants with issues relating to the promotion of food safety and to the facilitation of the movement of irradiated food in international and intra-regional trade

The papers presented described the current status of food irradiation in the region and the world, with particular emphasis on regulatory control requirements and the acceptance of irradiation by consumers and its adoption by industry

The Seminar provided an opportunity to exchange considerable information on food irradiation and its potential capacity to facilitate trade in food and to help control two of

the most serious problems connected with food supplies ie the extensive loss of food through deterioration, and the illness and death that result from food contaminated with pathogens and parasites

The Seminar participants concluded that increased food trade is of vital importance to further economic development of the region and that food irradiation can improve the safety, quality and quantity of food available, both domestically and for trade Moreover they agreed that the application of this technology should be in accordance with recognised international standards (ie Codex Alimentarius), good manufacturing practices and other food control tools They agreed that national authorities should work towards uniform regulations for food irradiation using the available intergovernmental co-ordination mechanisms such as the Codex Alimentarius Commission

A regional strategy to achieve harmonization of regulations in the region should be based on

- national regulation policies in accordance with international standards codes and guidelines,

- effective enforcement of control measures by competent authorities, including fully informed regulatory officials on the technical basis of the safety, benefits and limitations of food irradiation,

- factual consumer information programmes by governments industry and consumer associations, and

- the health needs and competitive advantage of Asia and the Pacific region to produce spices, dried herbs, seafood, fruits and vegetables

# *BILATERAL AGREEMENTS*

## Argentina-Brazil

***Agreements in Furtherance of the Agreement on the Use of Nuclear Energy Solely for Peaceful Purposes (1991)***

The above Agreement of 18 July 1991 between Argentina and Brazil was reported in Nuclear Law Bulletin No 48 It was approved by Argentina by Act No 24 046 of 5 December 1991 (published in the Boletin Oficial de la Republica Argentina of 24 December 1991) and approved by Brazil by Decree No 439 of 3 February 1992 (published in the Diario Oficial of 4 February 1992)

The Agreement provides for the setting up of an Argentine/Brazilian Agency for Accounting and Control of Nuclear Materials (ABACC) to be responsible for administering this joint system An Additional Protocol to that Agreement, concluded on 20 August 1991, sets out the privileges and immunities granted to the inspectors of ABACC (approved by Argentina on 5 December 1991 and published in the Diario Oficial on 9 January 1992) Argentina and Brazil have each appointed the members of the Commission which will jointly head ABACC

In addition, on 13 December 1991, Argentina, Brazil and ABACC concluded an Agreement with the International Atomic Energy Agency (IAEA) for the application of safeguards on all nuclear material for nuclear activities within their territories

## Argentina-Turkey

***Agreement for Co-operation in the Peaceful Uses of Nuclear Energy (1988)***

The above Agreement was concluded between Argentina and Turkey on 3 May 1988 and approved in Argentina by Act No 23 914 on 21 March 1991 (published in the Boletin Oficial of 22 April 1991)

Co-operation will cover the following areas

- research, development and technology in the field of nuclear reactors,
- establishment and operation of nuclear power plants and nuclear fuel processing installations, including fabrication of fuel elements,
- exploration for and mining of nuclear ores,
- industrial production of nuclear materials and equipment,
- production and use of radioisotopes,
- radiological and environmental protection,
- radioactive waste management,
- physical protection of nuclear materials

The Agreement specifies that all materials and equipment covered therein will be used for exclusively peaceful purposes and that the Parties will consult each other regarding the application of safeguards in connection with such materials and equipment, and where necessary, will conclude such agreements with the International Atomic Energy Agency They will also take the necessary physical protection measures

The Agreement will remain in force for fifteen years and is automatically renewable for five-year periods thereafter

## Belgium-Netherlands

***Memorandum of Understanding concerning early notification of a nuclear accident and exchange of information on the operation of nuclear installations (1990)***

This Memorandum of Understanding between Belgium and the Netherlands was concluded in Brussels on 20 December 1990 (published in Moniteur belge of 26 March 1991), and provides for close collaboration between the two countries in the light of the 1986 Vienna Convention on Early Notification of a Nuclear Accident (see Supplement to Nuclear Law Bulletin No 38 for text of the Convention), the 1984 Agreement between the two countries on mutual assistance in the event of catastrophes and accidents (see Nuclear Law Bulletin No 42) and the 1987 European Council Decision on Community arrangements for the early exchange of information in the event of a radiological emergency (see Nuclear Law Bulletin No 41)

To this end, the Parties agree to respond promptly to requests for consultation or further information, to advise each other of any abnormal increase in radioactivity in their respective territories whatever its source, and to exchange information concerning national developments in the peaceful uses of nuclear energy and relevant laws

# Brazil-Italy

***Agreement for Economic, Industrial, Scientific, Technical and Cultural Co-operation (1989-1991)***

This framework Agreement of 17 October 1989 was approved in Brazil by Decree No 431 of 20 January 1992 (published in the Diario Oficial of 21 January 1992) It provides that its Parties shall co-operate on the implementation of national programmes for the rational use of natural resources and protection of the environment, including exchange of information on non-polluting technologies and specific technologies for environmental protection

A Memorandum of Understanding was concluded by both countries on 11 December 1991 (published in the Diario Oficial of 27 December 1991) in implementation of the framework Agreement It provides, inter alia, for technical and scientific co-operation which includes a feasibility study on the storage of the radioactive waste resulting from the Goiana accident

# Germany

***Expiry of International Agreements of the former German Democratic Republic in the Field of Nuclear Energy (1991-1992)***

Article 12 of the Unification Treaty of 31 August 1990 between the Federal Republic of Germany and the former German Democratic Republic (see the Nuclear Law Bulletin No 46) provides that the German Federal Government, after consultation with the respective Contracting Parties must assess whether international treaties of the former GDR are to be continued or whether they have expired In accordance with that procedure, the Federal Government gave notice of the expiry of a number of international agreements in the nuclear field concluded by the former GDR with China Czechoslovakia, Hungary, Norway, Romania, and the USSR (see Bundesgesetzblatt 1991 II pp 957, 1077, 1114, 1992 II pp 24, 64, 68) The assessment of treaties, agreements and other international acts has not yet been completed

# Germany-USSR

***German-Soviet Agreement on the Termination of the Activities of the Soviet-German Public Limited Company "Wismut" (1991)***

Following the end of World War II the USSR exploited mines in Saxony and Thuringia which formed the Southern part of the former German Democratic Republic The operator

of the mines and of ore processing facilities for the production of yellowcake was the Sowjetisch-Deutsche Aktiengesellschaft "Wismut", a public limited company with a majority of Soviet shareholders

The Wismut company was granted a legal status by the GDR government which made it virtually exempt from any German jurisdiction In particular the company was authorised to issue its own licences for the mining and handling of radioactive material and for internal radiation protection The heedless mining of uranium, processing of ores and the related storage and transportation caused wide-ranging radioactive contamination of huge areas in Saxony and Thuringia, the extent of which cannot yet be finally assessed

Immediately after the unification of Germany in October 1990, the German Government started negotiations with the Government of the USSR with a view to terminating Wismut's activities The result was an Agreement of 16 May 1991 (Bundesgesetzblatt 1991 II p 1142)

Article 1 of that Agreement provides that the activities of the Wismut company ended on 1 January 1991

The German Parliament ratified the agreement by an Act of 12 December 1991 (Bundesgesetzblatt 1991 II p 1138) In order to facilate the decontamination and rehabilitation of the contaminated areas and facilitiates the Act provides for a continued validity of old licences granted by the Wismut company, the validity is however limited to a period of five years after entry into force of the Act and is restricted to rehabilitating measures only

In accordance with its Article 9, the Agreement of May 1991 entered into force on 20 December 1991 (Bundesgesetzblatt 1992 II p 96)

## Hungary-United States

***Agreement for Co-operation in the Peaceful Uses of Nuclear Energy (1991)***

The above Agreement between Hungary and the United States was signed in Vienna on 10 June 1991 and has now entered into force

The Agreement provides for exchange of experience, transfer of know-how, delivery of nuclear material and equipment, etc The Agreement lays down the groundwork for direct co-operation between both countries in the multiple uses of nuclear energy, namely in nuclear power generation, industry, agriculture health services environmental protection It complies with the provisions of the Treaty on the Non-Proliferation of Nuclear Weapons to which both countries are Parties and ensures observance of guidelines for nuclear exports

## Sweden-Switzerland

***Additional Protocol to the Agreement for Co-operation in the Peaceful Uses of Nuclear Energy (1990)***

This Additional Protocol to the Agreement of 1968 between Sweden and Switzerland was concluded on 25 April 1990 and entered into force by an exchange of letters on the same date

The Protocol specifies the Parties' obligations regarding transfers of materials for the installations in the Swiss nuclear fuel cycle, as described in a list agreed by both Parties The Protocol provides that the written authorisation referred to in the 1968 Agreement regarding the processing of nuclear fuel in Swiss installations is given in advance in the Protocol itself as is the prior consent for transfer of materials, thus simplifying procedures

The Parties, being Parties to the Treaty on the Non-Proliferation of Nuclear Weapons, refer to safeguards agreements they have concluded in its implementation, undertake to apply the Guidelines for the export of nuclear material, equipment or technology (INFCIRC/254 published by the IAEA), and also specify they are Parties to the Physical Protection Convention

# *MULTILATERAL AGREEMENTS*

## Joint Protocol Relating to the Application of the Vienna Convention and the Paris Convention

The Joint Protocol entered into force on 27 April 1992, following ratification by five Parties to each of the Paris and Vienna Conventions - Cameroon, Chile, Egypt, Hungary and Poland (Vienna Parties) and Denmark, Italy, the Netherlands, Norway and Sweden (Paris Parties) It was adopted on 21 September 1988 at a Conference convened by the International Atomic Energy Agency (IAEA) and the OECD Nuclear Energy Agency (NEA)

The Paris Convention on Third Party Liability in the Field of Nuclear Energy (1960) and the Vienna Convention on Civil Liability for Nuclear Damage (1963) both govern the liability of operators of nuclear installations for damage caused by accidents in their installations or during transport of radioactive materials The Joint Protocol establishes a bridge between the two Conventions by extending the benefit of each Convention to the Parties to the other It also avoids both Conventions applying to the same accident (See Nuclear Law Bulletin No 42 for text of the Joint Protocol, see also Nuclear Law Bulletin No 43 for an analysis of its provisions )

## Memorandum of Understanding for Co-operation in Fast Reactor/Fast Breeder Reactor R&D (1991)

On 31 October 1991, the European Fast Reactor Research and Development Committee (ERDSC) made up of the French Commissairat à l'Energie Atomique (CEA), the German Kernforschungszentrum Karlsruhe GmbH (KfK) and Interatom GmbH, and the United Kingdom Atomic Energy Authority (UKAEA), concluded the above Memorandum of Understanding with the Japanese Fast Breeder Reactor Research and Development Steering Committee (JSC), made up of the Japan Atomic Power Company (JAPC), the Power Reactor and Nuclear Fuel Development Corporation (PNC) and the Central Research Institute of the Electric Power Industry (CRIEPI)

The purpose of this Memorandum of Understanding, concluded for a period of five years, is to promote close co-operation between the R&D research activities in Europe and Japan on fast reactor/fast breeder research and sets up a Europe/Japan Co-ordinating Committee to this effect

Co-operation may be promoted through exchange of information in meetings, participation of experts in R&D, testing or other activities being performed by either Party joint R&D work, supply of test materials and equipment, etc

## Declaration on Nuclear Arms

Byelorussia, Kazakhstan, the Russian Federation and Ukraine, acting in the framework of the Commonwealth of Independent States (CIS) adopted this Declaration at Alma-Ata, Kazakhstan, on 22 December 1991 By this Declaration, the Member States undertake to jointly draw up a nuclear policy and confirm that they will not be the first to use nuclear weapons They also undertake not to transfer nuclear weapons to anyone

A translation of the Declaration is reproduced in the "Texts" Chapter of this issue of the Bulletin

## Treaty on the Non-Proliferation of Nuclear Weapons

The Treaty on the Non-Proliferation of Nuclear Weapons (NPT) was adopted on 1 July 1968 and entered into force on 5 March 1970 in accordance with Article IX thereof which provides that it shall enter into force following its ratification by forty Signatory States and the designated Depository States (the United Kingdom, the United States and the USSR) The text of the Treaty is reproduced as an Appendix to a commentary on the 1990 NPT Review Conference published in Nuclear Law Bulletin No 46 The present issue of the Bulletin contains an article on the future of the Treaty

The following table gives the status of the NPT as of March 1992

*TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS*

| *Contracting Parties* | *Date of Ratification/ Accession/Succession* |
|---|---|
| Albania | 12 Sept 1990 |
| Afghanistan | 4 Feb 1970 |
| Antigua and Barbuda (succ ) | 1 Nov 1985 |
| Australia | 23 Jan 1973 |
| Austria | 27 June 1969 |
| Bahamas (acc ) | 10 July 1976 |
| Bahrein (acc ) | 3 Nov 1988 |
| Bangladesh (acc ) | 27 Sept 1979 |
| Barbados | 21 Feb 1980 |
| Belgium | 2 May 1975 |
| Belize (succ ) | 9 Aug 1985 |
| Benin | 31 Oct 1972 |
| Bhutan | 23 May 1985 |
| Bolivia | 26 May 1970 |
| Botswana | 28 April 1969 |
| Brunei Darassalam (acc ) | 26 March 1985 |
| Bulgaria | 5 Sept 1969 |
| Burkina Faso | 3 March 1970 |
| Burundi (acc ) | 19 March 1971 |
| Cambodia | 2 June 1972 |
| Cameroon, United Republic of | 8 Jan 1969 |
| Canada | 8 Jan 1969 |
| Cape Verde (acc ) | 24 Oct 1979 |
| Central African Republic (acc ) | 25 Oct 1970 |
| Chad | 10 March 1971 |
| China, People's Republic of | 9 March 1992 |
| Columbia | 8 April 1986 |
| Congo (acc ) | 23 Oct 1978 |
| Costa Rica | 3 March 1970 |
| Cyprus | 10 Feb 1970 |
| Czechoslovakia | 22 July 1969 |
| Democratic Yemen | 1 June 1979 |
| Denmark | 3 Jan 1969 |
| Dominica (succ ) | 10 Aug 1968 |
| Dominican Republic | 24 July 1971 |
| Ecuador | 7 March 1969 |
| Egypt | 26 Feb 1981 |
| El Salvador | 11 July 1972 |
| Equatorial Guinea (acc ) | 1 Nov 1984 |
| Estonia (acc ) | 31 Jan 1992 |

acc = accession succ = succession

| *Contracting Parties* | *Date of Ratification/ Accession/Succession* |
|---|---|
| Ethiopia | 5 Feb 1970 |
| Fiji (acc ) | 14 July 1972 |
| Finland | 5 Feb 1969 |
| Gabon (acc ) | 19 Feb 1974 |
| Gambia | 12 May 1975 |
| Germany, Federal Republic of | 2 May 1975 |
| Ghana | 5 May 1970 |
| Greece | 11 March 1970 |
| Grenada (acc ) | 19 Aug 1975 |
| Guatemala | 22 Sept 1970 |
| Guinea | 29 April 1985 |
| Guinea Bissau (acc ) | 20 Aug 1976 |
| Haiti | 2 June 1970 |
| Holy See (acc ) | 25 Feb 1971 |
| Honduras | 16 May 1973 |
| Hungary | 27 May 1969 |
| Iceland | 18 July 1969 |
| Indonesia | 12 July 1979 |
| Iran | 2 Feb 1970 |
| Iraq | 29 Oct 1969 |
| Ireland | 1 July 1968 |
| Italy | 2 May 1975 |
| Ivory Coast | 6 March 1973 |
| Jamaica | 5 March 1970 |
| Japan | 8 June 1976 |
| Jordan | 11 Feb 1970 |
| Kenya | 11 June 1970 |
| Kiribati (succ ) | 18 April 1985 |
| Korea, Democratic People's Republic of | 12 Dec 1985 |
| Korea, Republic of | 23 April 1975 |
| Kuwait | 17 Nov 1989 |
| Lao People's Democratic Republic | 20 Feb 1970 |
| Latvia | 1992 |
| Lebanon | 15 July 1970 |
| Lesotho | 20 May 1970 |
| Liberia | 5 March 1970 |
| Libyan Arab Jamahiriya | 26 May 1975 |
| Liechtenstein (acc ) | 20 April 1978 |
| Lithuania | 23 Sept 1991 |
| Luxembourg | 2 May 1975 |
| Madagascar | 8 Oct 1970 |
| Malawi (succ ) | 1986 |
| Malaysia | 5 March 1970 |
| Maldives | 7 April 1970 |
| Mali, Republic of | 10 Feb 1970 |
| Malta | 6 Feb 1970 |
| Mauritius | 25 April 1969 |

| *Contracting Parties* | *Date of Ratification/ Accession/Succession* |
|---|---|
| Mexico | 21 Jan 1969 |
| Mongolia | 14 May 1969 |
| Morocco | 27 Nov 1970 |
| Mozambique (acc ) | 4 Sept 1990 |
| Nauru | 1982 |
| Nepal | 5 Jan 1970 |
| Netherlands | 2 May 1975 |
| New Zealand | 10 Sept 1969 |
| Nicaragua | 6 March 1973 |
| Nigeria | 27 Sept 1968 |
| Norway | 5 Feb 1969 |
| Panama | 13 Jan 1977 |
| Papua New Guinea (acc ) | 25 Jan 1982 |
| Paraguay | 4 Feb 1970 |
| Peru | 3 March 1970 |
| Philippines | 5 Oct 1972 |
| Poland | 12 June 1969 |
| Portugal (acc ) | 15 Dec 1977 |
| Qatar (acc ) | 3 April 1989 |
| Romania | 4 Feb 1970 |
| Russian Federation | 5 March 1970 |
| Rwanda (acc ) | 20 May 1975 |
| St Lucia (acc ) | 28 Dec 1979 |
| St Vincent and the Grenadines (succ ) | 6 Nov 1984 |
| San Marino | 10 Aug 1970 |
| Sao Tome and Principe (acc ) | 20 July 1983 |
| Saudi Arabia (acc ) | 3 Oct 1988 |
| Senegal | 17 Dec 1970 |
| Seychelles (acc ) | 12 March 1985 |
| Sierra Leone (acc ) | 26 Feb 1975 |
| Singapore | 10 March 1976 |
| Solomon Islands (succ ) | 17 June 1981 |
| Somalia | 5 March 1970 |
| South Africa (acc ) | 10 July 1991 |
| Spain (acc ) | 5 Nov 1987 |
| Sri Lanka | 5 March 1979 |
| Sudan | 31 Oct 1973 |
| Suriname (succ ) | 30 June 1976 |
| Swaziland | 11 Dec 1969 |
| Sweden | 9 Jan 1970 |
| Switzerland | 9 March 1977 |
| Syrian Arab Republic | 24 Sept 1969 |
| Taiwan, China | 27 Jan 1970 |
| Tanzania (acc ) | 7 June 1991 |
| Thailand (acc ) | 7 Dec 1972 |
| Togo | 26 Feb 1970 |
| Tonga (succ ) | 7 July 1971 |

| *Contracting Parties* | *Date of Ratification/ Accession/Succession* |
|---|---|
| Trinidad & Tobago | 30 Oct 1986 |
| Tunisia | 26 Feb 1970 |
| Turkey | 17 April 1980 |
| Tuvalu (succ ) | 19 Jan 1979 |
| Uganda | 1982 |
| United Kingdom | 27 Nov 1968 |
| United States | 5 March 1970 |
| Uruguay | 31 Aug 1970 |
| Venezuela | 26 Sept 1975 |
| Viet Nam, Socialist Republic of (acc ) | 14 June 1982 |
| Western Samoa (acc ) | 17 March 1975 |
| Yemen, Republic of | 1979/1986 |
| Yugoslavia | 3 March 1970 |
| Zaire | 4 Aug 1970 |
| Zambia | 15 May 1991 |
| Zimbabwe | 26 Sept 1991 |

## Conventions on Early Notification of a Nuclear Accident and Assistance in Case of a Nuclear Accident or Radiological Emergency

Both of the above Conventions were opened for signature on 26 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 27 October 1986 and the Convention on Assistance on 26 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 23 January 1992

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

Status of signatures, ratifications, acceptances, approvals or accessions

| *State/Organisation* | *Date of Signature* | *Date of Deposit of Instrument* |
|---|---|---|
| Afghanistan* | 26 Sep 1986 | |
| Algeria* | 24 Sep 1987 | |
| Argentina | | 17 Jan 1990 (access ) |
| Australia* | 26 Sep 1986 | 22 Sep 1987 (ratif ) |
| Austria | 26 Sep 1986 | 18 Feb 1988 (ratif ) |
| Bangladesh | | 7 Jan 1988 (access ) |
| Byelorussia* | 26 Sep 1986 | 26 Jan 1987 (ratif ) |
| Belgium | 26 Sep 1986 | |
| Brazil | 26 Sep 1986 | 4 Dec 1990 (ratif ) |
| Bulgaria* | 26 Sep 1986 | 24 Feb 1988 (ratif ) |
| Cameroon | 25 Sep 1987 | |
| Canada* | 26 Sep 1986 | 18 Jan 1990 (ratif ) |
| Chile | 26 Sep 1986 | |
| China* | 26 Sep 1986 | 10 Sep 1987 (ratif ) |
| Costa Rica | 26 Sep 1986 | 16 Sep 1991 (ratif ) |
| Cote d'Ivoire | 26 Sep 1986 | |
| Cuba* | 26 Sep 1986 | 8 Jan 1990 (ratif ) |
| Cyprus | | 4 Jan 1989 (access ) |
| Czechoslovakia* 1 | 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 ) |
| Germany, Federal Republic of* | 26 Sep 1986 | 14 Sep 1989 (ratif ) |
| Greece* | 26 Sep 1986 | 6 June 1991 (ratif ) |
| Guatemala | 26 Sep 1986 | 8 Aug 1988 (ratif ) |
| Holy See | 26 Sep 1986 | |
| Hungary* 1 | 26 Sep 1986 | 10 Mar 1987 (ratif ) |
| Iceland | 26 Sep 1986 | 27 Sep 1989 (ratif ) |
| 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 | 13 Sep 1991 (ratif ) |
| Israel | 26 Sep 1986 | 25 May 1989 (ratif ) |
| Italy* | 26 Sep 1986 | 8 Feb 1990 (ratif ) |

* Reservation/declaration deposited upon or following signature/ratification

| *State/Organisation* | *Date of Signature* | *Date of Deposit of Instrument* |
|---|---|---|
| Japan | 6 Mar 1987 | 9 Jun 1987 (accept ) |
| Jordan | 2 Oct 1986 | 11 Dec 1987 (ratif ) |
| Korea, Republic of | | 8 Jun 1990 (access ) |
| 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 | 19 Jul 1989 (approv ) |
| Mongolia* 1 | 8 Jan 1987 | 11 Jun 1987 (ratif ) |
| Morocco | 26 Sep 1986 | |
| Netherlands* | 26 Sep 1986 | 23 Sep 1991 (accept ) |
| New Zealand | | 11 Mar 1987 (access ) |
| Niger | 26 Sep 1986 | |
| Nigeria | 21 Jan 1987 | 10 Aug 1990 (ratif ) |
| Norway | 26 Sep 1986 | 26 Sep 1986 (on sign ) |
| Pakistan | | 11 Sep 1989 (access ) |
| Panama | 26 Sep 1986 | |
| Paraguay | 2 Oct 1986 | |
| Poland* | 26 Sep 1986 | 24 Mar 1988 (ratif ) |
| Portugal | 26 Sep 1986 | |
| Romania | | 12 Jun 1990 (access ) |
| Russian Federation* | 26 Sep 1986 | 23 Dec 1986 (ratif ) |
| Saudi Arabia | | 3 Nov 1989 (access ) |
| Senegal | 15 Jun 1987 | |
| Sierra Leone | 25 Mar 1987 | |
| South Africa | 10 Aug 1987 | 10 Aug 1987 (ratif ) |
| Spain | 26 Sep 1986 | 13 Sep 1989 (ratif ) |
| Sri Lanka | | 11 Jan 1991 (access ) |
| 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 | 3 Jan 1991 (ratif ) |
| Ukraine* | 26 Sep 1986 | 26 Jan 1987 (ratif ) |
| United Arab Emirates* | | 2 Oct 1987 (access ) |
| United Kingdom of Great Britain and Northern Ireland* | 26 Sep 1986 | 9 Feb 1990 (ratif ) |
| United States of America* | 26 Sep 1986 | 19 Sep 1988 (ratif ) |
| Uruguay | | 21 Dec 1989 (access ) |

1 Reservation/declaration subsequently withdrawn

| *State/Organisation* | *Date of Signature* | *Date of Deposit of Instrument* |
|---|---|---|
| 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 | |
| Food and Agriculture Organisation | | 19 Oct 1990 (access) |
| World Health Organisation* | | 10 Aug 1988 (access) |
| World Meteorological Organisation* | | 17 Apr 1989 (access) |

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

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

| *State/Organisation* | *Date of Signature* | *Date of Deposit of Instrument* |
|---|---|---|
| Afghanistan* | 26 Sep 1986 | |
| Algeria* | 24 Sep 1987 | |
| Argentina | | 17 Jan 1990 (access) |
| Australia* | 26 Sep 1986 | 22 Sep 1987 (ratif) |
| Austria | 26 Sep 1986 | 21 Nov 1989 (ratif) |
| Bangladesh | | 7 Jan 1988 (access) |
| Byelorussia* | 26 Sep 1986 | 26 Jan 1987 (ratif) |
| Belgium | 26 Sep 1986 | |
| Brazil | 26 Sep 1986 | 4 Dec 1990 (ratif) |
| Bulgaria* | 26 Sep 1986 | 24 Feb 1988 (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 | 16 Sep 1991 (ratif) |
| Cote d'Ivoire | 26 Sep 1986 | |
| Cuba* | 26 Sep 1986 | 8 Jan 1991 (ratif) |
| Cyprus | | 4 Jan 1989 (access) |
| Czechoslovakia* | 26 Sep 1986 | 4 Aug 1988 (ratif) |

* Reservation/declaration deposited upon or following signature/ratification

| *State/Organisation* | *Date of Signature* | *Date of Deposit of Instrument* |
|---|---|---|
| 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 | 27 Nov 1990 (approv ) |
| France* | 26 Sep 1986 | 6 Mar 1989 (approv ) |
| Germany, Federal Republic of* | 26 Sep 1986 | 14 Sep 1989 (ratif ) |
| Greece* | 26 Sep 1986 | 6 June 1991 (rafif ) |
| Guatemala | 26 Sep 1986 | 8 Aug 1988 (ratif ) |
| Holy See | 26 Sep 1986 | |
| Hungary* 1 | 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 | 13 Sep 1991 (ratif ) |
| Israel | 26 Sep 1986 | 25 May 1989 (ratif ) |
| Italy | 26 Sep 1986 | 25 Oct 1990 (ratif ) |
| Japan* | 6 Mar 1987 | 9 Jun 1987 (accept ) |
| Jordan | 2 Oct 1986 | 11 Dec 1987 (ratif ) |
| Korea, Republic of* | | 8 Jun 1990 (access ) |
| Lebanon | 26 Sep 1986 | |
| Libyan Arab Jamahiriya | | 27 Jun 1990 (access ) |
| 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 | 19 Jul 1989 (approv ) |
| Mongolia* 1 | 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 | 10 Aug 1990 (ratif ) |
| Norway* | 26 Sep 1986 | 26 Sep 1986 (on sign ) |
| Pakistan | | 11 Sep 1989 (access ) |
| Panama | 26 Sep 1986 | |
| Paraguay | 2 Oct 1986 | |
| Poland* | 26 Sep 1986 | 24 Mar 1988 (ratif ) |
| Portugal | 26 Sep 1986 | |
| Romania | | 12 Jun 1990 (access ) |
| Russian Federation* | 26 Sep 1986 | 23 Dec 1986 (ratif ) |
| Saudi Arabia | | 3 Nov 1989 (access ) |

1 Reservation/declaration subsequently withdrawn

| *State/Organisation* | *Date of Signature* | *Date of Deposit of Instrument* |
|---|---|---|
| Senegal | 15 Jun 1987 | |
| Sierra Leone | 25 Mar 1987 | |
| South Africa* | 10 Aug 1987 | 10 Aug 1987 (ratif ) |
| Spain | 26 Sep 1986 | 13 Sep 1989 (ratif ) |
| Sri Lanka | | 11 Jan 1991 (access ) |
| 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 | 3 Jan 1991 (ratif ) |
| Ukraine* | 26 Sep 1986 | 26 Jan 1987 (ratif ) |
| United Arab Emirates | | 2 Oct 1987 (access ) |
| United Kingdom of Great Britain and Northern Ireland* | 26 Sep 1986 | 9 Feb 1990 (ratif ) |
| United States of America* | 26 Sep 1986 | 19 Sep 1988 (ratif ) |
| Uruguay | | 21 Dec 1989 (access ) |
| Viet Nam, Socialist Republic of | | 29 Sep 1987 (access ) |
| Yugoslavia | | 9 Apr 1991 (access ) |
| Zaire | 30 Sep 1986 | |
| Zimbabwe | 26 Sep 1986 | |
| Food and Agriculture Organisation* | | 19 Oct 1990 (access ) |
| World Health Organisation* | | 10 Aug 1988 (access ) |
| World Meteorological Organisation* | | 17 Apr 1990 (access ) |

*Section 4*

Every year, the Government shall report to Parliament on progress in research into the management of high-level long-lived radioactive waste and in work being carried out at the same time regarding

- ways of separating and transmuting the long-lived radioactive elements present in such waste,

- possibilities of reversible or irreversible storage in deep geological formations, in particular by means of constructing underground laboratories,

- techniques for the conditioning and long-term surface storage of such waste

Reports shall also describe research and work carried out abroad

After a period not exceeding fifteen years from the promulgation of this Act, the Government shall present Parliament with a comprehensive evaluation report of such research together with a Bill authorising, if appropriate, the creation of a storage centre for high-level long-lived radioactive waste, and laying down the obligations and requirements relating to this centre

Parliament shall refer these reports to the Parliamentary Office for the evaluation of scientific and technological policy

These reports shall be made public They shall be prepared by an Evaluation Commission comprising

- six experts, of whom at least two shall be internationally renowned and three of whom shall be appointed by the National Assembly and three by the Senate, on the proposal of the Parliamentary Office for the evaluation of scientific and technological policy,

- two experts appointed by the Government, on the proposal of the Higher Council for Nuclear Safety and Information,

- four scientific experts appointed by the Government on the proposal of the Academy of Sciences

*Section 5*

Sections 6 to 12 below specify the conditions for the construction and operation of underground laboratories for the study of deep geological formations in which high-level long-lived radioactive waste might be stored or kept

*Section 6*

Any project for the construction of an underground laboratory shall, before any preliminary research work is undertaken, be discussed with the elected representatives and population of the sites concerned, under conditions to be laid down by decree

*Section 7*

Research work prior to the construction of laboratories shall be carried out under the conditions laid down by the Act of 29 December 1892 on Damage caused to private property by public works

*Section 8*

Without prejudice to the application of Act No 76-663 of 19 July 1976 on installations classified for purposes of environmental protection, the construction and operation of an underground laboratory shall be subject to a licence granted by Decree of the Conseil d'Etat, following an impact study and the opinion of the municipal, general and regional Councils concerned, and after a public inquiry organised in accordance with the provisions of Act No 83-630 of 12 July 1983 on the democratisation of public inquiries and environmental protection

Licences shall include specifications, and applicants for such licences must possess the technical and financial capabilities required to carry out the operations involved

*Section 9*

Licences shall within the boundary determined by the relevant Decree give the licensee the exclusive right to proceed with surface and underground work and to the materials extracted as a result of such work

The owners of land located within this boundary shall receive compensation either by amicable agreement with the licensee or in accordance with the rules on expropriation

Licensees may make use of the public interest expropriation procedure with respect to all or part of such land

*Section 10*

Licensing Decrees shall in addition, establish a protective area outside the boundary mentioned in the preceding Section, in which the administrative authorities may prohibit or regulate any work or activities likely to interfere, from a technical viewpoint with the construction or operation of the laboratory

*Section 11*

Radioactive sources may be used temporarily in such underground laboratories for experimental purposes

It is forbidden to store or keep radioactive waste in such laboratories

*Section 12*

Public interest groups may be constituted, in accordance with the provisions of Section 21 of Act No 82-610 of 15 July 1982 on technological research and development policy and programming in France, in order to carry out accompanying work and manage

equipment in such a way as to promote and facilitate the construction and operation of each laboratory

In addition to the State and the holder of the licence provided for under Section 8, the region and département in which the principal access well to the laboratory is situated, communes any part of which is situated within ten kilometres of such well and any body working towards inter-commune co-operation for the economic development of the area concerned, shall be entitled as of right to be members of such groups

*Section 13*

A public industrial and commercial body shall be created, with the name of National Radioactive Waste Management Agency, placed under the authority of the Ministers for Industry, Research and the Environment

This Agency shall be responsible for operations concerning the long-term management of radioactive waste, and in particular

- in co-operation notably with the Atomic Energy Commission, to help define and to contribute towards research and development programmes concerning the long-term management of radioactive waste,

- to ensure the management of long-term storage centres either directly or through the intermediary of a third party acting on its behalf,

- to design, select the site for and construct new storage centres in the light of the long-term forecasts for waste production and management, and to carry out all studies required for this purpose, in particular the construction and operation of underground laboratories to study deep geological formations,

- to define, in compliance with the safety rules, specifications for the treatment and storage of radioactive waste,

- to record the state and location of all radioactive wastes on French territory

*Section 14*

A local information and monitoring Committee shall be created at the site of each underground laboratory

These Committees shall include Government representatives, two Members of Parliament (députés) and two Senators appointed by their respective assemblies, elected representatives from the territorial units consulted at the time of the public inquiry, members of associations for protection of the environment and of agricultural trade unions, and representatives from professional organisations and from staff working at the site, as well as the licensees

At least half the membership of such Committees shall be comprised of elected representatives from the territorial units consulted at the time of the public inquiry Each

Committee shall be chaired by the Prefect of the département in which the laboratory is situated

Committees shall meet at least twice a year They shall be informed of the objectives of the programme, the nature of the work carried out and the results obtained They may refer any matter to the national Evaluation Commission referred to in Section 4

Committees shall be consulted on all matters relating to the operation of laboratories which affect the environment and the neighbourhood They may hear opinions or counter-valuations by authorised laboratories

The establishment and operating costs of local information and monitoring Committees shall be borne by the groups referred to in Section 12

*Section 15*

A Decree by the Conseil d'Etat shall lay down any implementing rules required by the present Act

# European Communities

## *Council Directive 92/3/Euratom of 3 February 1992 on the Supervision and Control of Shipments of Radioactive Waste between Member States and Into and Out of the Community*

***(Official Journal of the European Communities, No L 35, 12 February 1992)***

*THE COUNCIL OF THE EUROPEAN COMMUNITIES,*

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

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

Having regard to the opinion of the European Parliament,

Having regard to the opinion of the Economic and Social Committee,

Whereas on 2 February 1959 the Council adopted Directives laying dow the basic standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation, as amended by Directive 80/836/Euratom and Directive 84/467/Euratom,

Whereas pursuant to Article 2 of Directive 80/836/Euratom, these basic safety standards apply *inter alia* to the transport of natural and artificial radioactive substances,

Whereas pursuant to Article 3 of Directive 80/836/Euratom, each Member State must make compulsory the reporting of activities which involve a hazard arising from ionizing radiation, whereas, in the light of possible dangers and other relevant considerations these activities are subject to prior authorization in cases decided upon by each Member State,

Whereas Member States have consequently set up systems within their territories in order to meet the requirements of Article 3 of Directive 80/836/Euratom laying down basic standards in accordance with Article 30 of the Euratom Treaty, whereas, therefore, by means of the internal controls that Member States apply on the basis of national rules consistent with existing Community and any relevant international requirements, Member States continue to ensure a comparable level of protection within their territories,

Whereas the protection of the health of workers and the general public requires that shipments of radioactive waste between Member States and into and out of the Community be subject to a system of prior authorization, whereas this requirement is in line with the Community's policy of subsidiarity,

Whereas the European Parliament resolution of 6 July 1988 on the findings of the Committee of Inquiry into the Handling and Transport of Nuclear Materials calls *inter alia*, for comprehensive Community rules to make transfrontier movements of nuclear waste subject to a system of strict controls and authorizations from their point of origin to their point of storage,

Whereas Council Directive 84/631/EEC of 6 December 1984 on the supervision and control within the European Community of the transfrontier shipment of hazardous waste does not apply to radioactive waste,

Whereas by Decision No 90/170/EEC the Council has decided that the Community should be Party to the Basel Convention on the control of transboundary movements of hazardous wastes and their disposal of 22 March 1989, whereas that Convention does not apply to radioactive waste,

Whereas all the Member States have subscribed to the International Atomic Energy Agency (IAEA) code of good practice on the international transboundary movement of radioactive waste,

Whereas the management of radioactive waste necessitates supervision and control including a compulsory and common notification procedure for shipments of such waste,

Whereas measures ensuring *post-factum* control of shipments are necessary,

Whereas the competent authorities of the Member States of destination of radioactive waste should be able to raise objections to shipments of radioactive waste,

Whereas it is also desirable for the competent authorities of the Member State of origin and of the Member State(s) of transit to be able, subject to certain criteria, to lay down conditions in respect of the shipment of radioactive waste on their territory,

Whereas, to protect human health and the environment against dangers arising from such waste, account must be taken of risks occurring outside the Community whereas, therefore, in the case of radioactive waste entering and/or leaving the Community, the third country of destination or origin and any third country or countries of transit must be consulted and informed and must have given their consent,

Whereas the Fourth ACP-EEC Convention signed at Lomé on 15 December 1989 contains specific provisions governing the export of radioactive waste from the Community to non-member States party to that Convention,

Whereas radioactive waste may contain nuclear materials as defined by Commission Regulation (Euratom) No 3227/76 of 19 October 1976 concerning the application of the provisions on Euratom safeguards and the transport of such substances must be subjected to the International Convention on the physical protection of nuclear materials (IAEA, 1980),

*HAS ADOPTED THIS DIRECTIVE*

## TITLE I

## Scope

### *Article 1*

1 This Directive shall apply to shipments of radioactive waste between Member States and into and out of the Community whenever the quantities and concentration exceed the levels laid down in Articles 4 (a) and (b) of Directive 80/836/Euratom

2 Specific provisions concerning reshipment of such waste are set out in Title IV

### *Article 2*

For the purpose of this Directive

- "*radioactive waste*" means any material which contains or is contaminated by radionuclides and for which no use is foreseen,

- "*shipment*" means transport operations from the place or origin to the place of destination, including loading and unloading, of radioactive waste

- the "*holder*" of radioactive waste means any natural or legal person who, before carrying out a shipment, has the legal responsibility for such materials and intends to carry out shipment to a consignee,

- the "*consignee*" of radioactive waste means any natural or legal person to whom such material is shipped,

- "*place of origin*" and "*place of destination*" mean places situated in two different countries, either Member States of the Community or third countries, accordingly called "country of origin" and "country of destination",

- "*competent authorities*" means any authority which, under the law or regulations of the countries of origin, transit or destination, are empowered to implement the system of supervision and control defined in Titles I to IV inclusive, these competent authorities shall be designated in accordance with Article 17,

- "*sealed source*" has the meaning given to it in Directive 80/836/Euratom

*Article 3*

The transport operations necessary for shipment shall comply with Community and national provisions and with international agreements on the transport of radioactive material

TITLE II

**Shipments between Member States**

*Article 4*

A holder of radioactive waste who intends to carry out a shipment of such waste or to arrange for such a shipment to be carried out shall submit an application for authorization to the competent authorities of the country of origin These competent authorities shall send such applications for approval to the competent authorities of the country of destination and of the country or countries of transit, if any

For this purpose they shall use the standard document referred to in Article 20

The sending of that document shall in no way affect the subsequent decision referred to in Article 7

*Article 5*

1 Any application may be sent in respect of more than one shipment, provided that

- the radioactive waste to which it relates essentially has the same physical, chemical and radioactive characteristics, and

- the shipments are to be made from the same holder to the same consignee and involve the same competent authorities, and

- where shipments involve third countries, such transit is via the same frontier post of entry to and/or exit from the Community and via the same frontier post of the third country or countries concerned, unless otherwise agreed between the competent authorities concerned

2 The authorization shall be valid for a period of not more than three years

*Article 6*

1 Not later that two months after receipt of the duly completed application, the competent authorities of the country of destination and of any country of transit shall notify the competent authorities of the country of origin of their acceptance or of the conditions which they consider necessary or of their refusal to grant approval

For this purpose they shall use the standard document referred to in Article 20

2 Any conditions required by the competent authorities of the Member States, whether they are the country of transit or of destination, may not be more stringent than those laid down for similar shipments within those States and must comply with existing international agreements

Reasons shall be given for any refusal to grant approval or the attaching of conditions to approval, in accordance with Article 3

3 However, the competent authorities of the country of destination or of any country of transit may request a further period of not more than one month in addition to the period referred to in paragraph 1 to make their position known

4 If upon expiry of the periods referred to in paragraph 1 and, if appropriate paragraph 3, no reply has been received from the competent authorities of the country of destination and/or the intended countries of transit those countries shall be deemed to have given their approval for the shipment requested, unless they have informed the Commission, in accordance with Article 17, that they do not accept this automatic approval procedure in general

*Article 7*

If all the approvals necessary for shipment have been granted, the competent authorities of the Member State of origin shall be entitled to authorize the holder of the radioactive waste to ship it and inform the competent authorities of the country of destination and of the country or countries of transit, if any

For that purpose they shall use the standard document referred to in Article 20 Any additional requirements for such shipments shall be attached to this document

This authorization shall not in any way affect the responsibility of the holder the transporter, the owner, the consignee or any other natural or legal person involved in the shipment

*Article 8*

Without prejudice to any other accompanying documents required under other relevant legal provisions, the documents referred to in Articles 4 and 6 shall accompany each shipment falling under the scope of this Directive including the cases of approval of more than one transfer referred to in Article 5

Where shipments are made by rail, these documents shall be available to the competent authorities of all the countries concerned

*Article 9*

1 Within fifteen days of receipt, the consignee of the radioactive waste shall send the competent authorities of its Member State an acknowledgement of receipt, using the standard document referred to in Article 20

2 The competent authorities of the country of destination shall send copies of the acknowledgement to the other countries involved in the operation The competent authorities of the country of origin shall send a copy of the acknowledgement to the original holder

TITLE III

**Imports into and out of the Community**

*Article 10*

1 Where waste falling within the scope of this Directive is to enter the Community from a third country and the country of destination is a Member State, the consignee shall submit an application for authorization to the competent authorities of that Member State using the standard document referred to in Article 20 The consignee shall act as the holder and the competent authorities of the country of destination shall act as if they were the competent authorities of the country of origin referred to in Title II in respect of the country or countries of transit

2 Where waste falling within the scope of this Directive is to enter the Community from a third country and the country of destination is not a Member State, then the Member State in whose territory the waste is first to enter the Community shall be deemed to be the country of origin for the purposes of that shipment

3 With regard to shipments falling within paragraph 1, the intended consignee of the shipment within the Community, and with regard to shipments falling within paragraph 2, the person within the Member State in whose territory the waste is first to enter the Community who has responsibility for managing the shipment within that Member State shall inform his competent authorities in order to initiate the appropriate procedures

*Article 11*

The competent authorities of Member States shall not authorize shipments

1 either to

(a) a destination south of latitude 60° south,

(b) a State party to the Fourth ACP-EEC Convention which is not a member of the Community, taking account, however, of Article 14,

2 or to a third country which, in the opinion of the competent authorities of the country of origin, in accordance with the criteria referred to in Article 20 does not have the technical, legal or administrative resources to manage the radioactive waste safely

*Article 12*

1 Where radioactive waste is to be exported from the Community to a third country, the competent authorities of the Member State of origin shall contact the authorities of the country of destination regarding such a shipment

2 If all the conditions for shipment are fulfilled, the competent authorities of the Member State of origin shall authorize the holder of radioactive waste to ship it and shall inform the authorities of the country of destination about this shipment

3 This authorization shall not in any way affect the responsibility of the holder the transporter the owner, the consignee or any other natural or legal person involved in the shipment

4 For the purpose of the shipment, the standard documents referred to in Article 20 shall be used

5 The holder of the radioactive waste shall notify the competent authorities of the country of origin that the waste has reached its destination in the third country within two weeks of the date of arrival and shall indicate the last customs post in the community through which the shipment passed

6 This notification shall be substantiated by a declaration or certification of the consignee of the radioactive waste stating that the waste has reached its proper destination and indicating the customs post of entry in the third country

TITLE IV

**Reshipment operations**

*Article 13*

Where a sealed source is returned by its user to the supplier of the source in another country, its shipment shall not fall within the scope of this Directive

However, this exemption shall not apply to sealed sources containing fissile material

*Article 14*

This Directive shall not affect the right of a Member State or an undertaking in the Member State to which waste is to be exported for processing to return the waste after

treatment to its country of origin Nor shall it affect the right of a Member State or an undertaking in that Member State to which irradiated nuclear fuel is to be exported for reprocessing to return to its country of origin waste and/or other products of the reprocessing operation

*Article 15*

1 Where a shipment of radioactive waste cannot be completed or if the conditions for shipment are not complied with in accordance with the provisions under Title II, the competent authorities of the Member State of dispatch shall ensure that the radioactive waste in question is taken back by the holder of that waste

2 In case of shipments of radioactive waste from a third country to a destination within the Community, the competent authorities of the Member State of destination shall ensure that the consignee of that waste negotiates a clause with the holder of the waste established in the third country obliging that holder to take back the waste where a shipment cannot be completed

*Article 16*

The Member State or States which approved transit for the initial shipment may not refuse to approve reshipment in the cases referred to

- in Article 14, if the reshipment concerns the same material after treatment or reprocessing and if all relevant legislation is respected,

- in Article 15, if the reshipment is undertaken on the same conditions and with the same specifications

TITLE V

**Procedural provisions**

*Article 17*

Member States shall forward to the Commission not later than 1 January 1994 the name(s) and the address(es) of the competent authorities and all necessary information for rapidly communicating with such authorities, as well as their possible non-acceptance of the automatic approval procedure referred to in Article 6 (4)

Member States shall regularly forward to the Commission any changes to such data

The Commission shall communicate this information, and any changes thereto, to all the competent authorities in the Community

*Article 18*

Every two years, and for the first time on 31 January 1994, Member States shall forward to the Commission reports on the implementation of this Directive

They shall supplement these reports by information on the situation with regard to shipments within their respective territories

On the basis of these reports, the Commission shall prepare a summary report for the European Parliament, the Council and the Economic and Social Committee

*Article 19*

The Commission shall be assisted in performing the tasks laid down in Articles 18 and 20 by a Committee of an advisory nature composed of representatives of the Member States and chaired by the representative of the Commission

The representative of the Commission shall submit to the Committee a draft of the measures to be taken The Committee shall deliver its opinion on the draft within a time limit which the Chairman may lay down according to the urgency of the matter, if necessary by taking a vote

The opinion shall be recorded in the minutes in addition, each Member State shall have the right to ask to have its position recorded in the minutes

The Commission shall take the utmost account of the opinion delivered by the Committee It shall inform the Committee of the manner in which its opinion has been taken into account

*Article 20*

The procedure laid down in Article 19 shall in particular apply to

- the preparation and possible updating of the standard document for applications for authorization referred to in Article 4,

- the preparation and possible updating of the standard document for granting approval referred to in Article 6 (1),

- the preparation and possible updating of the standard document for acknowledgment of receipt referred to in Article 9 (1),

- the establishment of criteria enabling Member States, to evaluate whether requirements for exports of radioactive waste are met as provided for in Article 11 (2),

- the preparation of the summary report referred to in Article 18

TITLE VI

**Final provisions**

*Article 21*

1 Member States shall bring into force not later than 1 January 1994 the laws, regulations and administrative provisions necessary to comply with this Directive They shall forthwith inform the Commission thereof

2 When Member States adopt the measures referred to in paragraph 1, they shall contain a reference to this Directive or shall be accompanied by such reference on the occasion of their official publication The methods of making such reference shall be laid down by the Member States

3 Member States shall communicate to the Commission the main provisions of domestic law which they adopt in the field governed by this Directive

*Article 22*

This Directive is addressed to the Member States

## *Commission Recommendation of 26 July 1991 on the Application of the Third and Fourth Paragraphs of Article 33 of the Euratom Treaty (91/444/Euratom)*

*(Official Journal of the European Communities No L 238, 27 August 1991)*

*THE COMMISSION OF THE EUROPEAN COMMUNITIES,*

Having regard to the Treaty establishing the European Atomic Energy Community, and in particular Articles 33, second paragraph, and 124, second indent, thereof,

Whereas Article 2 (b) of the Treaty provides for the establishment of uniform safety standards to protect the health of the general public and workers against the dangers arising from ionizing radiation,

Whereas, in order to achieve this objective, Article 31 of the Treaty entrusts to the Council the task of establishing the basic standards in the area of radiation protection,

Whereas the Council and the Commission have adopted a number of legal acts pursuant to this Article relating to the health protection of the general public and workers,

Whereas the basic standards are intended to evolve and may be supplemented on the basis of Article 32,

Whereas, pursuant to the first paragraph of Article 33 of the Treaty, each Member State is required to lay down the appropriate provisions, by legislation, regulation or administrative action, to ensure compliance with the basic standards which have been established, and to take the necessary measures with regard to teaching education and vocational training,

Whereas, on the basis of the second paragraph of Article 33, the Commission makes appropriate recommendations for harmonizing the provisions applicable in this field in the Member States,

Whereas, pursuant to the third paragraph of Article 33 of the Treaty, each Member State is required to communicate to the Commission the draft laws, regulations and administrative provisions mentioned above, whereas, pursuant to the fourth paragraph of Article 33, the Commission may issue recommendations within three months of the date on which such provisions are communicated,

Whereas this procedure is designed to ensure that the uniform nature of the basic standards is reflected in the national provisions of the Member States and to bring about the harmonization of their legislation for the protection of the health of the general public and workers against ionizing radiation,

Whereas the Commission's recommendations are designed to ensure that the draft laws, regulations and administrative provisions are adapted to take account of the basic standards,

Whereas the Commission's recommendations can be fully effective only if they are addressed to the Member States before the latter adopt their draft provisions,

Whereas the Member States should therefore not finally adopt any draft provisions until the period of three months granted to the Commission under Article 33, fourth paragraph, of the Treaty has elapsed,

Whereas it is essential that the Member States, in accordance with the spirit of Article 192 of the Treaty and with a view to facilitating the work of the Commission, communicate to the Commission the provisions as finally adopted in order to make it possible for the Commission to ensure, pursuant to Article 124 of the Treaty, that the provisions of Community law are applied,

Whereas in order to ensure correct application of the procedure provided for in Article 33, it is useful to define the draft provisions which must be communicated to the Commission for this purpose,

Whereas experience has been gained in the application of the third and fourth paragraphs of Article 33 of the Treaty,

*HEREBY RECOMMENDS*

1 The Member States, after completion of the consultation procedure provided for in the national decision-making process and, in any event, at the last three months before their adoption, communicate to the Commission, in accordance with the third paragraph of Article 33 of the Treaty establishing the European Atomic Energy Community, the draft laws, regulations and administrative provisions, defined in the Annex, which are designed to ensure compliance with the basic standards

2 The Member States refrain from finally adopting any draft provisions before the Commission has communicated its recommendations to them or, in any event, before the period of three months mentioned in the fourth paragraph of Article 33 of the Treaty, starting from the date on which the Commission receives the draft provisions, has elapsed

3 Any major amendment to draft provisions which have already been presented to the Commission for recommendations be communicated to the Commission

4 The Member States communicate to the Commission the text adopted and the date on which it enters into force

This recommendation is addressed to Member States

*ANNEX*

"Provisions, whether by legislation, regulation or administrative action", as referred to in the first paragraph of Article 33 of the Treaty establishing the European Atomic Energy Community, are taken to mean

- all laws and all other acts which are legally binding,

- circulars, directives and codes of practice of a general nature which are not legally binding but are binding on the administrative body concerned,

- national, regional or local emergency plans, depending on the organization adopted in the Member States, for dealing with a radiological emergency within the meaning of Council Directives 80/836/Euratom and 89/618/Euratom,

- in so far as the contents of the following have not been laid down in the above mentioned acts

  the training programmes for workers, approved medical practitioners and qualified experts within the meaning of Articles 24 and 40 (3) of Directive 80/836/Euratom and for doctors, dental practitioners and other practitioners and assistants within the meaning of Article 2 of Directive 84/466/Euratom,

  the programmes for informing the general public and the persons likely to be involved in organizing assistance in the event of a radiological emergency within the meaning of the Directive 89/618/Euratom,

- the inventory of medical radiological equipment within the meaning of Article 3 of Directive 84/466/Euratom,

which are appropriate to ensure compliance with the standards laid down in the Directives adopted pursuant to Article 31 of the Treaty

# Commonwealth of Independent States

## *Declaration on Nuclear Arms**

### *22 December 1991*

Byelorussia, Kazakhstan, the Russian Federation and Ukraine called henceforth Member States,

CONFIRMING their adherence to the non-proliferation of nuclear armaments,

STRIVING for the elimination of all nuclear armaments, and

WISHING to strengthen international stability, have agreed on the following

*Article 1*

The nuclear armaments that are part of the unified strategic armed forces insure the collective security of all members of the Commonwealth of Independent States (CIS)

*Article 2*

The Member States of this Agreement confirm the obligation not to be the first to use nuclear weapons

*Article 3*

The Member States of this Agreement are jointly drawing up a policy on nuclear matters

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* Translation by the Tass Press Agency, published in the Newsbrief of the Programme for Promoting Nuclear Non-Proliferation (PPNN), Winter 1991/92 Reproduced in the Bulletin by kind permission of Mr John Simpson (PPNN) Mountbatten Centre for International Studies, University of Southhampton, United Kingdom

*Article 4*

Until nuclear weapons have been completely eliminated on the territory of the Republic of Byelorussia and Ukraine, decisions on the need to use them are taken, by agreement with the heads of the Member States of the Agreement, by the R S F S R [Russian Soviet Federated Socialist Republic] President, on the basis of procedures drawn up jointly by the Member States

*Article 5*

1 The Republics of Byelorussia and Ukraine undertake to join the 1968 Nuclear Non-Proliferation Treaty as non-nuclear states and to conclude with the International Atomic Energy Agency the appropriate safeguard agreements

2 The Member States of this Agreement undertake not to transfer to anyone nuclear weapons or other triggering devices and technologies, or control over such nuclear triggering devices, either directly or indirectly, as well as not in any way to help, encourage and prompt any state not possessing nuclear weapons to produce nuclear weapons or other nuclear triggering devices, and also control over such weapons or triggering devices

3 The provisions of paragraph 2 of this Article do not stand in the way of transferring nuclear weapons from Byelorussia, Kazakhstan and Ukraine to R S F S R territory with a view to destroying them

*Article 6*

The Members States of this Agreement, in accordance with the international treaty, will assist in the eliminating of nuclear weapons By July 1, 1992 Byelorussia, Kazakhstan and Ukraine will insure the withdrawal of tactical nuclear weapons to central factory premises for dismantling under joint supervision

*Article 7*

The Governments of Byelorussia, Kazakhstan, the Russian Federation and Ukraine undertake to submit a treaty on strategic offensive arms to the Supreme Soviets of their states

*Article 8*

This agreement requires ratification It will come into force on the 30th day after the handing over of all ratification papers to the government of the R S F S R for safekeeping

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## Germany

***Neuntes Deutsches Atomrechts-Symposium. 24-26 June 1991, Münich, Papers and Discussion Reports Edited by Rudolf Lukes and Adolph Birkhofer, Cologne, Heymanns Verlag 1991 (Series Recht - Technik - Wirtschaft, Vol 64), 380 pages***

This publication contains the papers presented at the 9th German Nuclear Law Symposium which took place in Münich on 24-26 June 1991 The Symposium aimed at discussing the plans of the Federal Government to amend the Atomic Energy Act comprehensively Expert studies prepared by six nuclear law experts from German universities provided the basis for the discussions (the studies were reported under "Bibliography" in Nuclear Law Bulletin No 48) This publication also reproduces the reports on the discussions

***Deutsches Atomenergierecht im internationalen Rahmen Tagungsbericht der AIDN/INLA Regionaltagung am 6 und 7 Juni 1991 in Erfurt Edited by Norbert Pelzer, Baden-Baden. NOMOS Verlagsgesellschaft 1992, 300 pages***

This is a report on the 1991 regional meeting (6-7 June) of the German branch of the International Nuclear Law Association (INLA) The meeting was devoted to the general theme "German Atomic Energy Law in the International Framework" Speakers from Germany, Austria, Poland, Switzerland, the United States and the International Atomic Energy Agency dealt with public international law issues of nuclear energy, with nuclear liability law and especially with the new legal problems created by the German unification and its impact on nuclear law The discussions are summarised in special reports

## Tunisia

***Etude de la réglementation nucléaire en Tunisie les avant-projets de textes réglementaires, Tunis, 1991, 95 pages***

This study on nuclear regulation in Tunisia (preliminary drafts and regulatory texts) published by the Tunisian Electricity and Gas Company (STEG), contains preliminary drafts drawn up by STEG, with the assistance of the International Atomic Energy Agency (IAEA)

and in collaboration with other national authorities, with a view to developing a legislative and regulatory framework for nuclear activities

The texts would

- define an institutional framework for nuclear activities,
- regulate the authorisation and control of nuclear installations,
- regulate the physical protection of nuclear materials,
- regulate the transport of radioactive materials and the management of radioactive waste, and
- define civil liability for nuclear damage

An *exposé des motifs* for each draft text is included, as is a list of the international Conventions relating to the peaceful uses of nuclear energy which Tunisia has ratified

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NUCLEAR LAW
Bulletin

**SUPPLEMENT TO No. 49**

# *Netherlands*

***Nuclear Third Party Liability Act of 1979***
***As Last Amended by the Act of Parliament of 26 June 1991***

June 1992

*Netherlands*

# NUCLEAR THIRD PARTY LIABILITY ACT OF 17 MARCH 1979 AS LAST AMENDED BY THE ACT OF PARLIAMENT OF 26 JUNE 1991 (*Bulletin of Acts, Orders and Decrees*, No. 373)*

## CHAPTER I
*Definitions*

***Section 1***

1. For the purposes of applying the provisions laid down in or pursuant to this Act:

The "Paris Convention" means the Convention on Third Party Liability in the Field of Nuclear Energy concluded in Paris on 29 July 1960 (*Netherlands Treaty Series* 1961, No. 27; 1962, No. 64), as amended by the Additional Protocol to that Convention concluded in Paris on 28 January 1964 (*Netherlands Treaty Series* 1964, No.178) and by the Protocol to that Convention concluded in Paris on 16 November 1982 (*Netherlands Treaty Series* 1983, No. 80);

The "Brussels Convention" means the Convention concluded in Brussels on 31 January 1963 supplementary to the Paris Convention (*Netherlands Treaty Series* 1963, No. 171), as amended by the Additional Protocol to that Convention concluded in Paris on 28 January 1964 (*Netherlands Treaty Series* 1964, No. 179) and by the Protocol to that Convention concluded in Paris on 16 November 1982 (*Netherlands Treaty Series* 1983, No. 81);

The "Joint Protocol" means the Joint Protocol concluded in Vienna on 21 September 1988, on the Application of the Vienna Convention and the Paris Convention (Netherlands Treaty Series, 1988, No. 160);

"Nuclear incident", "nuclear installation", nuclear substances", "operator" and "damage" have the same meaning as in the Paris Convention.

2. For the purposes of applying the provisions laid down in or pursuant to the Paris Convention, the Brussels Convention and the present Act, the operator of a nuclear installation situated in the Netherlands shall be deemed to be the duly authorised person who establishes, puts into operation or operates a nuclear installation in the Netherlands. Loss of such authority by revocation or suspension of the relevant licence or exemption

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* Translation provided by the Netherlands authorities.

shall not cause him to lose his status as an operator of a nuclear installation situated in the Netherlands as regards liability for damage caused by a nuclear incident involving nuclear fuel or radioactive products or waste in respect whereof he was liable at the time of losing his authority or would have become liable owing to commitments already undertaken at that time, until such time as his liability as an operator has been taken over by someone else.

## CHAPTER II

***Implementation of the Paris Convention***

***Section 2***

When the Paris Convention is applied, the provisions of this Act shall be observed.

***Section 3***

The exemption of liability for damage caused by a nuclear incident which is directly due to a grave natural disaster of an exceptional character as referred to in Article 9 of the Paris Convention shall not apply to the liability of the operator of a nuclear installation situated in the Netherlands.

***Section 4***

Any person who, in respect of damage caused by a nuclear incident for which the operator of a nuclear installation situated in the Netherlands is liable, has paid compensation under the provisions of an international agreement other than the Paris and Brussels Conventions or the legislation of other States, shall, up to the amount which he has paid, acquire the rights under this Act of the person suffering damage whom he has so compensated. Article 6(g) of the Paris Convention shall apply accordingly.

***Section 5***

1. The maximum liability of the operator of a nuclear installation situated in the Netherlands shall be established at 500 million guilders, pursuant to Article 7(b)(i) of the Paris Convention.

2. The maximum amount stated in subsection 1 may be changed by Royal Decree, the possibilities of obtaining insurance cover having been taken into account.

3. In the cases in which, in the opinion of Our Minister of Finance, the nature of the nuclear installation or nuclear substances concerned, and the likely consequences of an incident in which they are involved warrant it, he may, in agreement with Our Minister of

Justice, reduce the maximum amount of liability - as laid down in subsections 1 and 2 - of the operator concerned.

*Section 6*

At the request of a carrier and with the consent of the operator of a nuclear installation situated in the Netherlands, Our Minister of Finance may, provided the requirements of Article 10(a) of the Paris Convention have been fulfilled, decide that under

such terms as he shall stipulate the carrier shall be liable in accordance with the Paris Convention and this Act in place of the operator.

*Section 7*

1. Without prejudice to the extinction periods referred to in subsections 2, 4 and 5, the right to compensation shall be extinguished if an action is not brought within three years from the date on which the person suffering damage, or, if he has a legal representative, such legal representative has knowledge of or ought reasonably to have known of both the damage and the operator liable.

2. The right to compensation shall be extinguished:

   a) with respect to damage to persons, if an action has not been brought within thirty years from the date of the nuclear incident;

   b) with respect to all other damage, if an action has not been brought within ten years from the date of the nuclear incident.

3. The Minister of Finance shall enter into insurance contracts or provide other guarantees as referred to in Section 9 with respect to the liability of the operator in respect of all actions for compensation begun after the expiry of a period of ten years from the date of the nuclear incident, but before the expiry of a period of thirty years after the nuclear incident.

4. Actions for compensation begun after a period of ten years from the date of the nuclear incident shall not affect the right of compensation of any person who has brought an action within that period.

5. In the case of damage caused by a nuclear incident in which nuclear fuel or radioactive products or waste are involved which, at the time of the incident, have been stolen, lost, jettisoned or abandoned and not yet been recovered, the right to compensation shall be extinguished twenty years from the date of the theft, loss, jettison or abandonment.

*Section 8*

1. The competent public authority referred to in Article 10(a) and (b) of the Paris Convention shall be Our Minister of Finance.

2. Our Minister of Finance, may, in concurrence with Our other Ministers concerned, determine that two or more nuclear installations operated by one and the same operator on the same site, together with any other premises on that site where radioactive materials are located, are to be regarded as one nuclear installation for the purposes of the Paris Convention and this Act.

*Section 9*

If in the opinion of Our Minister of Finance an operator of a nuclear installation situated in the Netherlands cannot obtain adequate financial security as referred to in Article (10)a of the Paris Convention or if such financial security in the opinion of Our Minister of Finance is obtainable only for an unreasonable premium or other payment, Our Minister may enter into insurance contracts on behalf of the State as insurer or provide other State guarantees on such terms and for such premiums or other payments as he may determine.

*Section 10*

1. In so far as the funds becoming available from the financial security referred to in Article 10(a) of the Paris Convention are insufficient to compensate for the damage for which the operator of a nuclear installation situated in the Netherlands is liable, the State shall make public funds available to the operator up to his maximum liability.

2. In so far as the lack of the financial security referred to in subsection 1 is the operator's own fault, the State shall have the right to recover from the operator the funds it has provided in connection therewith.

3. The State shall have the operator's right of recourse referred to in Article 6(f) of the Paris Convention up to the amount it has made available to the operator out of public funds pursuant to subsection 1. In the exercise of this right the State shall have priority over the insurers or other persons providing financial security as referred to in Article 10(a) of the Paris Convention.

*Section 11*

Acts by insurers or other persons providing financial security as referred to in Article 10(a) of the Paris Convention which are contrary to the provisions of Article 10(b) of that Convention shall be void. They shall be declared void by the Court of its own accord.

## CHAPTER III
*Implementation of the Brussels Convention*

***Section 12***

When the Brussels Convention is applied, the provisions of this Act shall be observed.

***Section 13***

In so far as the maximum amount referred to in Section 5 of this Act is insufficient to compensate for damage as referred to in Article 2 of the Brussels Convention for which the operator of a nuclear installation situated in the Netherlands is liable under the Paris Convention, the public funds referred to in Article 3(b)(ii) and (iii) and (f) of the Brussels Convention for compensating such damage shall be made available other than as cover for the liability of the operator.

***Section 14***

The States which have made public funds available pursuant to Article 3(b)(ii) and (iii) and (f) of the Brussels Convention shall have the operator's right of recourse referred to in Article 6(f) of the Paris Convention up to the amount thus made available. In the exercise of this right those States shall have priority over the insurers or other persons providing financial security as referred to in Article 10(a) of the Paris Convention.

## CHAPTER IV
*Supplementary Provisions*

***Section 15***

1. The limitations on the scope of the Paris Convention mentioned in Article 2 of the Convention do not apply to the liability of the nuclear operator of a nuclear installation situated in the Netherlands for damage:

a) suffered on the territory of a State Party to the Paris Convention, regardless of where the incident occurred;

b) suffered on the territory of a State, other than those referred to in subsection (a), but Party to the Joint Protocol, when it is the result of a nuclear incident that occurred on the territory of a State which is Party to the Joint Protocol; or

c) regardless where it was suffered, resulting from a nuclear incident that occurred on the territory of the Netherlands.

2. Exceptions to the provisions of Article 2 of the Paris Convention other than those referred to in subsection 1 may be made by a Royal Decree as regards the liability of the operator of a nuclear installation situated in the Netherlands.

3. If within three months of the entry into force of a Royal Decree as referred to in subsection 2 We have not presented a Bill to Parliament for amendment of this Act in conformity with such Decree or if such Bill is withdrawn or rejected We shall cancel the said Decree forthwith.

***Section 16***

The Paris Convention and Chapters I, II and V of this Act shall also apply to nuclear installations situated in the Netherlands that do not appear on the list drawn up and kept up to date in accordance with Article 13 of the Brussels Convention, on the understanding that the maximum liability referred to in Section 5 of this Act shall be the amount stated in Article 3(a) of the Brussels Convention.

***Section 17***

1. As regards a nuclear incident occurring on Netherlands territory, the consignor and the carrier of the nuclear substances involved in the incident and also the person who held such substances at the time of the incident shall be deemed to be the operator of a nuclear installation situated in the Netherlands and as such be held jointly and severally liable for the damage thereby caused unless it is proved that some other person is liable pursuant to the Paris Convention or the Joint Protocol, provided that the maximum total amount of their liability shall not be higher than the amount stated in Article 3(a) of the Brussels Convention.

2. Article 6 of the Paris Convention and Chapter V of this Act shall also apply to liability pursuant to subsection 1.

3. Subsection 1 shall not apply:

a) with respect to a person who did not know of the nuclear nature of the substances involved nor ought reasonably to have known of it;

b) with respect to a person who at the time of the nuclear incident was transporting the nuclear substances involved therein in compliance with a transport contract or had them in storage incidental thereto if he could reasonably assume:

i) that some other person would be liable for the damage under the Paris Convention or the Joint Protocol; or

ii) that some other person would be liable for the damage pursuant to subsection 1 and that such person had an insurance or other financial security approved by Our Minister of Finance to cover his liability.

***Section 18***

1. If damage is suffered on Netherlands territory as a result of a nuclear incident for which compensation is payable pursuant to the Brussels Convention or this Act and the funds becoming available from other sources are insufficient to compensate for such damage, the State shall provide the public funds required to compensate for the damage to such an effect that a total amount of five thousand million guilders is available.

2. The State shall have a right of recourse in respect of the disbursements and any costs relating thereto against persons liable pursuant to this Act.

3. Section 14 shall apply in like manner to the provision of public funds pursuant to subsection 1.

4. The provisions of subsection 1 shall also apply to the damage concerned, suffered in States which are Parties to the Brussels Convention and which, at the time of the nuclear incident, have enacted provisions which are equivalent in their nature, scope, and in the extent of the compensation, to the provisions in this Act.

5. Rules may be made by or by virtue of a Royal Decree regarding the provision of public funds in pursuance of subsection 1.

***Section 19***

Our Minister of Finance may charge the operator an amount of money, which he shall determine, for the provision of public funds by the State pursuant to Sections 13 or 18.

***Section 20***

If and in so far as Netherlands social security legislation gives rise to an entitlement to benefits as compensation for the damage, any person who has to pay such benefits will have the right to compensation under the Paris and Brussels Conventions, the Joint Protocol and this Act on the understanding that in the case of payment in instalments the damage shall be deemed to be the capitalised value of the benefits due. In all other respects the provisions of the said legislation shall remain in force.

***Section 21***

Our Minister of Finance shall have authority to enter into contracts of insurance on behalf of the State as insurer or provide other guarantees on behalf of the State not exceeding the sum of five thousand million guilders per nuclear incident for the benefit of the operator of a nuclear installation situated in the Netherlands with respect to compensation for damage caused by a nuclear incident, otherwise than pursuant to the Paris Convention and this Act, on such terms and for such premiums or other payments as he may decide.

## CHAPTER V
***Procedural Law***

***Section 22***

1. The District Court at The Hague shall be the exclusively competent court of first instance.

2. Should there be a reasonable likelihood that the total amount of the claims submitted will exceed the maximum liability of the operator pursuant to Section 5 of this Act, the District Court at The Hague shall, at the request of an interested party and having heard the operator and Our Minister of Finance, impose a prohibition on the payment of damages, appoint an examining judge who shall be responsible for determining the statements of distribution of the amounts referred to in Section 27, subsection 1 (opening sentence) and shall also appoint a committee of liquidators (hereafter referred to as "the committee"). The Court may appoint more than one examining judge and replace an examining judge in the event of his or her resignation. It may alter the composition of the committee.

3. The Registrar shall immediately notify the operator and the insurers or other persons who have provided financial security as referred to in Article 10(a) of the Paris Convention and the persons who are to provide financial security on the basis of the Joint Protocol, as well as Our Minister of Finance, of the issuance of a prohibition order as referred to in subsection 2. The Registrar shall also immediately publish the order in the Government Gazette, and shall in doing so refer to the provisions of the second sentence of subsection 4.

4. Any payments made contrary to a prohibition order as referred to in subsection 2 shall be null and void as from the moment on which the person making the payments has been notified of the order. From that moment, all claims for the payment of damages shall be presented to the committee for verification by means of the submission of an invoice or other written statement in which the nature and amount of the claim are set out, together with documentary evidence in support of the claim or copies thereof. The committee shall immediately forward to the operator and Our Minister of Finance copies of all the documents submitted.

5. The operator and the insurers or other persons who have provided financial security as referred to in Article 10(a) of the Paris Convention and the persons who are to provide financial security on the basis of the Joint Protocol, as well as the State, shall be obliged to pay into an account designated by the committee, if ordered to do so by the examining judge, all amounts necessary to comply with the provisions of Section 29, with the proviso that the total amount to be paid by each of the said persons individually shall be reduced by the amount which such person has already paid for compensation of damage prior to the moment on which he or she was notified of the order as referred to in subsection 2.

6. The sums paid in pursuance of subsection 5 may not be made subject to seizure.

***Section 23***

1. The committee shall, either at the request of one of the persons who are obliged to make payments pursuant to Section 22, subsection 5, or of its own accord, consult with the interested parties in the event of a claim for damages being submitted.

2. The committee shall at all times be entitled to appoint and consult experts.

3. Whenever necessary, the examining judge, having heard the committee, shall set a date or dates, including a time and place, on which to verify the claims submitted.

4. The committee shall be entitled to demand of a creditor that he or she submit any missing documents and allow the committee to inspect original documentary evidence.

5. The committee shall draw up a list of the claims submitted, stating in brief the grounds on which it intends to contest a claim during a meeting as referred to in Section 24, subsection 1. This list shall be available at the Registry, during a period of at least three weeks prior to the date set for the verification, for inspection free of charge by any person.

***Section 24***

1. On the date or dates set in pursuance of Section 23, subsection 3, the examining judge shall hold one or more public meetings in the presence of the committee or one or more of its members.

2. All creditors, the persons who are obliged to make payments pursuant to Section 22, subsection 5, and the committee shall be entitled to contest a claim at the said meeting.

3. Where a claim is uncontested, the examining judge shall liquidate it, accepting the amount claimed as correct.

4. If a claim is contested, and the examining judge cannot reconcile the parties concerned, he shall refer them to one or more court sessions, as he thinks appropriate, for decision of the point at issue.

***Section 25***

1. If a creditor who has requested a verification fails to appear at the session to which the case has been referred in pursuance of Section 24, subsection 4, he shall be deemed to have withdrawn his claim, in so far as it has been contested.

2. If a person who has contested a claim fails to appear, he shall be deemed to have ceased contesting the claim in question.

3. The further procedure following such a referral shall be as laid down in Book 1 of the Code of Civil Procedure.

***Section 26***

1. After the sessions referred to in Section 24 have been held, or, in the event that these have led to the contestation of a claim, after an irrevocable judgment has been given on the point at issue, the committee shall draw up a statement of distribution which it shall submit to the examining judge for approval.

2. The statement of distribution shall specify with respect to each creditor the amount of interest due and the party who has the obligation of paying the costs.

***Section 27***

1. If the total amount of the claims submitted exceeds the maximum liability of the operator pursuant to Section 5 of this Act, the amount referred to in Article 3(a) of the Brussels Convention, or the amount referred to in Section 18, subsection 1 of this Act, the following rules shall apply to the claims in each case in so far as they are can be met out of these amounts:

a) where the claims relate only to damage to persons, the claims shall be reduced proportionately;

b) where the claims relate only to damage other than that referred to in (a) above, the claims shall be reduced proportionately;

c) where the claims relate both to damage as referred to in (a) above and to damage as referred to in (b) above, two-thirds of the amount in question shall be allocated solely for the payment of the claims as referred to in (a) above (which claims shall, if necessary, be reduced proportionately), while the remainder shall be allocated for the payment of the claims as referred to in (b) above and of the claims as referred to in (a) above, in so far as the latter claims would otherwise not be paid. In the event of an amount remaining, in accordance with the provisions of the preceding sentence, after payment of the claims as referred to in (a) above, the amount thus remaining

shall be allocated for the payment of the claims referred to in (b) above, in so far as the said claims would not otherwise be paid.

2. Where Section 18 is applied, the compensation available in respect of claims relating to damage to persons which are submitted at least ten years after the date on which the nuclear incident in question occurred shall not be less than ten per cent of the amount made available by the State.

***Section 28***

1. The statement of distribution established by the examining judge shall be available at the Registry of the Court for inspection free of charge by the parties during a period of three months. The parties may, at any time within the said period, appeal to the Court against the statement of distribution by lodging a reasoned notice of objection with the Registry.

2. At the end of the said period, the Court shall pass judgment after it has heard the parties or duly summoned them to appear before it.

***Section 29***

Once a statement of distribution has been established by the examining judge, or, should an appeal have been lodged in good time, by the Court, the committee shall pay the claimants the amounts due to them.

***Section 30***

1. The examining judge may, during the period prior to the adoption of the statement of distribution, make advance payments, at the suggestion of the committee, to those persons who have suffered damage as a result of a nuclear incident. Section 22, subsection 5, shall apply accordingly.

2. During the period referred to in subsection 1, the examining judge may also draw up a provisional statement of distribution. In such an event, Section 22, subsection 5, and Sections 26 to 29 shall apply accordingly.

3. The examining judge may rule that claimants to whom a payment is to be made in pursuance of the provisions of subsections 1 and 2 should provide security of a nature which he shall determine.

***Section 31***

1. The orders issued by the examining judge, the order issued by the Court granting a request as referred to in Section 22, subsection 2, and the order issued by the Court pursuant to Section 28, subsection 2, may not be appealed.

2. The manner and place in which claims are submitted to the committee, the orders issued by the examining judge and the order issued by the Court pursuant to Section 28,

subsection 2, and all documents deposited shall be brought to the notice of interested parties in a manner determined by the examining judge.

3. Subject to the application of Sections 56, 57 and 58 of the Code of Civil Procedure, the expenses arising from the application of the present Chapter shall be borne by those persons who are obliged to make payments in pursuance of Section 22, subsection 5, in proportion to the sum owed by each of them.

***Section 32***

Sections 429a to 429r of the Code of Civil Procedure shall apply to a request in pursuance of Section 22, subsection 2, in so far as this Act does not provide otherwise.

## CHAPTER VI
***Final Provisions***

***Section 33***

1. The Act of 27 October 1965 containing rules concerning third party liability in the field of nuclear energy (*Bulletin of Acts, Orders and Decrees*, No. 546) is hereby revoked.

2. The Act referred to in subsection 1 shall continue to be applicable with respect to damage caused by a nuclear incident occurring prior to this Act entering into force.

3. The Royal Decree of 28 December 1965 (*Bulletin of Acts, Orders and Decrees*, No. 647) implementing Section 2 of the Act referred to in subsection 1 and the Decrees by Our Minister of Finance under Section 1, subsection 2, and Section 10, subsection 2 of that Act are deemed to be based on the corresponding provisions of this Act and shall remain in force until revoked or replaced.

***Section 34***

1. This Act may be cited as the Nuclear Third Party Liability Act.

2. It shall enter into force on a date to be determined by Us.*

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* Note by Secretariat: This Act was published on 3 May 1979 and entered into force on 28 December 1979. The Act of 26 June 1991 amending that Act entered into force on 1 August 1991.