

# **N**uclear Law Bulletin

## **No. 78**

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# NUCLEAR LAW BULLETIN No. 78

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# ARTICLES

## **Right of innocent passage of ships carrying ultra-hazardous cargoes**

**by Miguel Sousa Ferro\***

### **I. Introduction**

For several years now, a significant number of coastal states have claimed a right to deny passage through their territorial seas, or even through their exclusive economic zones (EEZ), to ships carrying ultra-hazardous cargoes. The issue was particularly brought into the limelight with the trips of the Pacific Teal and the Pacific Pintail, in the framework of a nuclear fuel recycling programme between the UK/France and Japan. But claims in this direction have been expressed since at least the negotiation of the 1982 United Nations Convention on the Law of the Sea (LOS Convention).<sup>1</sup>

The purpose of this paper is to analyse the legitimacy of such claims (contrary, *prima facie*, to the principle of freedom of navigation) under international law. For this purpose, the relevant rules of international law and the arguments invoked by doctrine and states in favour of a right to refuse passage to such ships shall be presented and discussed. This analysis will focus, therefore, on possible limits to the right of innocent passage, through the EEZ and territorial sea of third party states, of commercial ships carrying ultra-hazardous cargoes, such as highly radioactive material. It will exclude, however, military vessels and passage through international straits. The right of coastal States to require prior notification of passage (without implying a request for authorisation) will also be addressed.

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1. The text of this convention is available at:  
[www.un.org/Depts/los/convention\\_agreements/convention\\_overview\\_convention.htm](http://www.un.org/Depts/los/convention_agreements/convention_overview_convention.htm).

## II. Right of innocent passage as negotiated at UNCLOS III<sup>2</sup>

### A. *Before UNCLOS III*

To say that freedom of navigation has been a binding principle of international customary law since Grotius published his famous and initially anonymous *De Mare Liberum*<sup>3</sup> would seem a somewhat simplistic approach, neglecting the political-military reality of the time and the counter arguments of Selden<sup>4</sup> and Serafim de Freitas.<sup>5</sup> Still, it is undisputed that, at least since the early nineteenth century,<sup>6</sup> freedom of navigation (including innocent passage through the territorial sea) has been a renowned principle of international law. The right of innocent passage was recognised at the failed attempt to codify the Law of the Sea at the Hague, at the beginning of the twentieth century, and later on by the International Court of Justice (ICJ)<sup>7</sup> and in UNCLOS I.<sup>8</sup>

By 1974, it was settled that the breadth of the territorial sea should be understood to be 12 nautical miles,<sup>9</sup> which implied a significant reduction of the surface of the ocean where total freedom of navigation applied. Naturally, this made it all the more relevant to define in what way, and to what extent, coastal States could intervene or prevent the passage of foreign ships through their territorial sea.

In this respect, the 1958 Territorial Sea Convention (which never managed to gather an impressive number of ratifications) left much room for improvement. According to its Article 14(4), commercial ships were free to exercise innocent passage through the territorial sea as long as such passage was not “prejudicial to the peace, good order or security of the coastal state”. This collection of undefined concepts left far too much room for disputes between flag states and coastal states.

### B. *The Montego Bay Convention*<sup>10</sup>

Not surprisingly, therefore, one of the major changes introduced by the 1982 United Nations Convention on the Law of the Sea (LOS Convention) was to add to that same general principle

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2. UNCLOS III was the third United Nations Conference on the Law of the Sea, which took place from 1973 to 1982. Over 160 nations participated in the 9-year convention, which finally came into force on 14 November 1994, 21 years after the first meeting of UNCLOS III and one year after ratification by the sixtieth state.
  3. Grotius, Hugo, *Mare Liberum Sive De Jure Quod Batavis Competit Ad Indicana Commercia Dissertatio*, Leiden, Ludovic Elzevier, 1609.
  4. Selden, John, “*De Mare Clausum*”, 1618 (first published in London, in 1635).
  5. Freitas, Frei Serafim de, “*De Ivsto Imperio Lvsitanorum Asiatico*”, Valladolid, 1625.
  6. Telesca, Thomas A., “Sovereignty Or the Precautionary Principle: Which Will Save Our Fish”, 12 (2003) *Southeastern Environmental Law Journal* 23.
  7. Corfu Channel case (United Kingdom/Albania), I.C.J. Reports 1949, p. 4. The full text of this case is also available at: [www.icj-cij.org/icjwww/idecisions.htm](http://www.icj-cij.org/icjwww/idecisions.htm).
  8. 1958 Convention on the Territorial Sea and the Contiguous Zone [hereinafter “1958 Territorial Sea Convention”], Arts. 1 and 14 to 17.
  9. ICJ, *Fisheries Jurisdiction* (United Kingdom and Federal Republic of Germany v. Iceland), *Judgement of 25 July 1974 (Merits)*, para. 52 onwards.
  10. The 1982 LOS Convention was opened for signature in Montego Bay (Jamaica) on 10 December 1982.



(phrased identically in Article 19(1)), a list of situations in which passage would be deemed to be “non-innocent”. According to Article 19(2), insofar as is relevant to the issue at hand:

“Passage of a foreign ship shall be considered to be prejudicial to the peace, good order or security of the coastal State if in the territorial sea it engages in any of the following activities: (...)

h) any act of wilful and serious pollution contrary to this convention; (...)

l) any other activity not having a direct bearing on passage”.

The first thing that stands out from this list is that it is unclear, from the phrasing of Article 19(2), whether this was supposed to be an exhaustive enumeration. Two of the world’s major maritime powers took the view that the list had to be exhaustive, as that had been precisely the objective of the negotiations – to eliminate legal uncertainty as to which activities rendered passage “non-innocent”.<sup>11</sup>

Nonetheless, the International Law Association has held that there is at least one case which was not included in that list, but which must nonetheless be understood to render passage “non-innocent”: “a ship whose condition is so utterly deplorable that it is extremely likely to cause a serious incident with major harmful consequences, including to the marine environment”.<sup>12</sup> If we accept this suggestion, we must recognise that Article 19(2)’s enumeration is not exhaustive, and this makes it particularly important to ascertain the principles or main guidelines defining the balance between the right of innocent passage and the right (obligation) of coastal States to protect the marine environment. However, one might also argue that an extreme situation such as that which was envisaged by the International Law Association could be dealt with otherwise, without necessarily resorting to classifying the passage as “non-innocent”. Indeed, Art. 220(2) of the LOS Convention allows coastal States which suspect that a certain vessel is not complying with national regulations implementing international safety standards to inspect the vessel and even to detain it, in order to institute appropriate procedures in the most serious cases.

Article 19(2)(h) clarifies that any act of wilful and serious pollution may be contrary to the peace, good order or security of the coastal State. However, this and the remaining provisions require an activity to be carried out – this is particularly clear in the language of Article 19(2)(l) (“any other activity...”). In other words:

“Without serious harm, (...) a coastal state may not deprive the right of innocent passage from a vessel merely carrying ultra-hazardous substances, such as nuclear materials and highly toxic chemicals.”<sup>13</sup>

The mere nature of the cargo is insufficient to render passage “non-innocent”. As long as vessels comply with applicable safety standards, the coastal state cannot rely on the potential of

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11. Uniform Interpretation of Rules of International Law Governing Innocent Passage, USA-USSR Agreement (adopted at Jackson Hole, Wyoming, on 23 September 1989) 28 (1989) ILM 1444, paras. 3 and 4.

12. [www.ila-hq.org/pdf/Coastal.pdf](http://www.ila-hq.org/pdf/Coastal.pdf), p. 51.

13. Tanaka, Mari, “Lessons from The Protracted MOX Plant Dispute: A Protected Protocol On Marine Environmental Impact Assessment to The United Nations Convention on The Law of The Sea”, 25 (2004) *Michigan Journal of International Law* 337, 350.

environmental damage, even of great proportions, to refuse passage. A different interpretation would entirely negate the right of innocent passage to ships carrying ultra-hazardous cargoes.

The proof that the LOS Convention intended to include ships carrying ultra-hazardous cargoes within the category of vessels enjoying the right of innocent passage is that specific provisions were inserted to regulate this passage. This also shows that, contrary to widespread belief, concerns regarding the risks of such shipments were already present in the minds of the negotiators of the convention.

Firstly, Article 22(2) allows coastal states to set up sea lanes for ships carrying hazardous cargoes, taking into account *inter alia* customs and the recommendations of the International Maritime Organization (IMO). Secondly, Article 23 requires these same vessels to “carry documents and observe special precautionary measures established for such ships by international agreements” when traversing the territorial sea of a third state. This provision refers directly to “foreign nuclear-powered ships and ships carrying nuclear or other inherently dangerous or noxious substances”.

The coastal state’s sovereign rights are limited, in so far as required, by the right of innocent passage of foreign vessels. This is made clear in Article 24(1)(a), developing the principle set out in Article 2(3):

“The coastal State shall not hamper the innocent passage of foreign ships through the territorial sea except in accordance with this Convention. In particular, in the application of this Convention or of any laws or regulations adopted in conformity with this Convention, the coastal State shall not: impose requirements on foreign ships which have the practical effect of denying or impairing the right of innocent passage; (...)”.

This provision might be read to suggest that innocent passage may be hampered, but it appears to be undisputed that it should simply be read to mean that coastal States cannot restrict innocent passage beyond that which is allowed by the convention (e.g. designating sea lanes), perhaps also suggesting that any passage which is “non-innocent” may be prevented or brought to a halt by the coastal state, as is better stated in Article 25(1).

Article 220(2) further sets out the limits of coastal state intervention in the exercise of innocent passage, in this case specifically in relation to protection of the marine environment:

“Where there are clear grounds for believing that a vessel navigating in the territorial sea of a State has, during its passage therein, violated laws and regulations of that State adopted in accordance with this Convention or applicable international rules and standards for the prevention, reduction and control of pollution from vessels, that State, without prejudice to the application of the relevant provisions of Part II, section 3, may undertake physical inspection of the vessel relating to the violation and may, where the evidence so warrants, institute proceedings, including detention of the vessel, in accordance with its laws, subject to the provisions of section 7”.

According to Article 25(3):

“The coastal State may, without discrimination in form or in fact among foreign ships, suspend temporarily in specified areas of its territorial sea the innocent passage of foreign ships if such suspension is essential for the protection of its security, including weapons exercises. Such suspension shall take effect only after having been duly published.”

Having its historical foundation in precedents relating to nuclear weapons exercises,<sup>14</sup> this provision can clearly not be used to prevent the passage of specific ships, as this measure must be non discriminatory. The provision is meant to be used in light of events taking place within the territorial sea, not in light of the characteristics of vessels approaching it, and it must be based on objective and worthy criteria. For concerns surrounding individual vessels, Article 19(2) should be invoked. It is, nonetheless, interesting to note that only Mexico has notified the use of Article 25(3), at each time briefly invoking a military exercise as a justification and, on two occasions, invoking no reason whatsoever.<sup>15</sup>

While some argue that the coastal state is entitled to define its own “standards to preempt willful or negligent spills or discharges”,<sup>16</sup> it should be highlighted that Article 21(2) of the LOS Convention limits national regulations on design, construction, manning and equipment of ships to the mere enforcement of “generally accepted international rules or standards”, i.e. the standards set out by the International Maritime Organization (IMO) and the International Atomic Energy Agency (IAEA). On the other hand, Article 211(4) seems to extend this power of coastal States, as it refers back to that provision mentioning only the non-hampering of innocent passage, and not the limit set by international standards. Furthermore, Article 211(5) does mention this limit, but in relation to the EEZ. Nonetheless, to the best of my knowledge, there has been no serious controversy in the international community concerning the safety standards of shipments of ultra-hazardous cargoes. They are generally recognised to be sufficient, and the safety record of these shipments is impressive by any account.

In the exclusive economic zone, an area that extends 200 nautical miles from the baselines, the coastal state was given jurisdiction over the “protection and preservation of the marine environment” by Article 56(1)(b)(iii). However, and insofar as is relevant to the subject at hand, the EEZ was designed to be an area where freedom of navigation applies in the same manner as on the high seas. Indeed, Article 58(1) refers explicitly to the freedoms listed in Article 87, covering *inter alia* freedom of navigation on the high seas. It is therefore hard to contend that the text of the convention allows the passage of foreign vessels through the EEZ to be hampered.

States are responsible for ensuring that vessels flying their flag comply with national safety standards, which in turn should comply with international standards [Article 94]. Article 192 establishes the general obligation of all states to protect and preserve the marine environment, which is further developed in the remaining articles of Part XII [*maxime* Article 194 and Article 217].

### **III. Discussion of arguments and claims by coastal States**

#### **A. Refusal of passage to ships carrying ultra-hazardous cargoes**

The first disputes on the interpretation of this aspect of the regime of innocent passage emerged from the declarations made by several states upon signature or ratification. Diametrically opposing

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14. ICJ, “Nuclear Tests” (Australia and New Zealand v. France), Judgement of 20 December 1974 (Merits).

15. See: [www.un.org/Depts/los/convention\\_agreements/innocent\\_passages\\_suspension.htm](http://www.un.org/Depts/los/convention_agreements/innocent_passages_suspension.htm).

16. Draper, Randon H., “Resuscitating The Victims of Ship Pollution: The Right of Coastal Inhabitants to a Healthy Environment”, 15 (2004) *Colorado Journal of International Environmental Law and Policy* 181, p. 191.

positions were expressed concerning the possibility of denying passage through the territorial sea to ships carrying “inherently dangerous” cargoes.<sup>17</sup>

Generally, the main arguments put forward by states who favoured a limitation of the freedom of passage of this type of vessel were:

- freedom of passage will not be granted until the international agreements referred to in Article 23 of the LOS Convention (concerning carriage of documents and special precautionary measures for ships carrying nuclear substances) are concluded (Egypt and Saudi Arabia added the requisite that they should have themselves become parties to those international agreements);
- Article 22(2) of the LOS Convention could serve as a basis for such a right of coastal States;
- there has been an evolution of international customary law, based on events subsequent to the adoption of the LOS Convention, which grants coastal states the right in question.

The first argument entails a complex discussion with little legal certainty. Two questions should be distinguished. First, is the right of innocent passage of ships carrying ultra-hazardous cargoes suspended as long as the international agreements referred to in Article 23 of the LOS Convention are not concluded? And in the affirmative, have such international agreements already been concluded?

Would the negotiators of the Montego Bay Convention or, better still, would the spirit of the convention suggest that passage of ships with ultra-hazardous cargoes could be refused as long as Article 23 had not been executed? The first evidence against this position is found in the drafting of this provision. If such a meaning had been intended, Article 23 would surely have been drafted differently. Its current language suggests more its nature as an onward-looking clause rather than an *a priori* condition for the exercise of that right. The latter solution would have been unacceptable for flag-states, as it would effectively allow for indefinite suspension of the right of innocent passage for the ships in question.

A further point which could be made, and has indeed been argued by Egypt and Saudi Arabia, is that the suspension effect of Article 23 would only be lifted once the coastal state in question had itself adhered to the international treaties in question. This reading, however, seems to contradict the *pacta sunt servanda* principle – essentially, a state party to the LOS Convention would be able to eternally postpone the “activation” of the right of innocent passage of ships carrying ultra-hazardous cargoes simply by never adhering to the international agreements mentioned in Art. 23. The reading of Art. 23 suggested by those two states would therefore deprive Articles 17 and 19 of their *effet utile* with regard to ships carrying ultra-hazardous cargoes, and would not be in accordance with the criteria set out in Article 31 of the 1969 Vienna Convention on the Law of Treaties.

Even if one disagrees with this conclusion, it must be noted that there is already an extensive international regime governing the safety and security of shipments. This includes the mandatory International Maritime Dangerous Goods Code,<sup>18</sup> combined with the Model Regulations of the United

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17. Against: see Declarations of Bangladesh (27 July 2001), Egypt (26 August 1983), Malaysia (14 October 1996), Malta (20 May 1993), Oman (17 August 1989), Saudi Arabia (24 April 1996) and Yemen (21 July 1987); in favour: see Declarations of Germany (14 October 1994), Italy (7 December 1984; 13 January 1995), Netherlands (28 June 1996), and United Kingdom of Great Britain and Northern Ireland (25 July 1997), all available at: [www.un.org/Depts/los/convention\\_agreements/convention\\_declarations.htm](http://www.un.org/Depts/los/convention_agreements/convention_declarations.htm).

18. Information on this code is available at: [www.imo.org/Safety/mainframe.asp?topic\\_id=158](http://www.imo.org/Safety/mainframe.asp?topic_id=158).

Nations<sup>19</sup> and the IAEA Regulations for the Safe Transport of Radioactive Material.<sup>20</sup> To this one should add the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management<sup>21</sup> and, to some extent, even the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal,<sup>22</sup> along with its implementing regional treaties. Finally, one should not forget the Convention on the Physical Protection of Nuclear Material.<sup>23</sup>

Clearly, these instruments include both precautionary measures and requirements to carry special documents, but it would always be arguable that these are not the measures referred to in Article 23 of the LOS Convention. For this reason, if one chooses to interpret Article 23 as having a suspensive effect over the right of innocent passage, it then easily becomes a loophole in the treaty. Ultimately, it would be up to the appropriate international jurisdiction to settle a dispute on the interpretation of this Article.

As for the second argument, that Article 22(2) of the LOS Convention allows coastal states to refuse passage through their territorial seas to ships carrying ultra-hazardous cargoes, it is quite clear from the letter of that provision that it is not to be used to **prevent** passage, but rather to **control** it through the designation of sea lanes and traffic separation schemes.

While not relating to ultra-hazardous materials per se (this fact makes it all the more interesting), it should also be mentioned that, after the Prestige spill,<sup>24</sup> France, Spain and Portugal agreed on a co-ordinated policy of expelling from their EEZ single-hulled ships older than 15 years and bearing certain other characteristics, invoking for this purpose Article 56 of the LOS Convention.<sup>25</sup> This action is clearly in contradiction with the letter of the Montego Bay Convention. This was made even clearer by the fact that this policy decision was not implemented into domestic legislation or in any form of bilateral or multilateral agreement. Nonetheless, it has been systematically applied since then, despite mild protests from other states.

This brings us to the third argument, which is based on an evolution in international customary law. It is my understanding that the basis for the pretensions of coastal states is not to be found within the LOS Convention, and can therefore only be found in an ulterior evolution of international law.

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19. The 14<sup>th</sup> edition of the United Nations Recommendations on the Transport of Dangerous Goods – Model Regulations (Model Regulations) was published in 2005.
  20. The text of these regulations is available on the IAEA Web site at: [www-pub.iaea.org/MTCD/publications/PDF/Pub1225\\_web.pdf](http://www-pub.iaea.org/MTCD/publications/PDF/Pub1225_web.pdf).
  21. The text of this convention is available on the IAEA Web site at: [www.iaea.org/Publications/Documents/Conventions/jointconv.html](http://www.iaea.org/Publications/Documents/Conventions/jointconv.html).
  22. The text of this convention is available online at [www.basel.int/text/con-e.htm](http://www.basel.int/text/con-e.htm).
  23. The text of this convention is available on the IAEA Web site: at: [www.iaea.or.at/Publications/Documents/Infcircs/Others/inf274r1.shtml](http://www.iaea.or.at/Publications/Documents/Infcircs/Others/inf274r1.shtml).
  24. The *Prestige* was an oil tanker whose sinking on 19 November 2002 off the Galician coast caused a large oil spill. The spill polluted thousands of kilometers of coastline and caused great damage to the local fishing industry. ([http://en.wikipedia.org/wiki/Prestige\\_oil\\_spill](http://en.wikipedia.org/wiki/Prestige_oil_spill)).
  25. See: [www.ifremer.fr/envlit/actualite/20021127.html](http://www.ifremer.fr/envlit/actualite/20021127.html), and [www.polmar.com/prestige/portugal.htm](http://www.polmar.com/prestige/portugal.htm).

This argument has been advanced by both coastal states and some doctrine, amongst which Van Dyke<sup>26</sup> and Currie<sup>27</sup> stand out.

In order for customary law to be formed, there must be constant and uniform practice within the international community and the conviction that this practice is rendered obligatory by the existence of law requiring it.<sup>28</sup> International jurisdictions require clear and sufficient evidence of a generally accepted custom, with some level of uniformity.<sup>29</sup>

There is certainly a substantial number of coastal states claiming the right to refuse passage of ships through their territorial seas and even exclusive economic zones. These claims were most evident during the voyages of the Pacific Teal and the Pacific Pintail. Some even say that exporting states have consented to these claims, instructing their vessels to stay clear of the waters of those states. It must be conceded that the Pacific Teal and the Pacific Pintail most often stayed clear of third states' waters. However, the United Kingdom also promised some states, such as South Africa, that the ships would not enter their waters, even though they did. More important, however, are the reasons for which exporting states are assenting, even if only partially, to these claims. This behaviour seems to be based solely on the desire to maintain friendly diplomatic relations, rather than on a sense of legal obligation. In other words, even if all evidence of consistent international practice could be gathered – which, in my view, is still lacking, even in relation to the territorial sea alone – the *opinio juris* element would be lacking.

That is not to say that this cannot change. But the current situation is still one where exporting states believe it is their right to see vessels carrying their flag traverse the territorial sea of third states, even if they choose not to exercise it. This was made quite clear by the recent journey of several decommissioned vessels from the USA to Europe.<sup>30</sup> These vessels, which were radioactively contaminated, entered the Portuguese territorial sea around the islands of Azores, and were then expelled by the local navy.

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26. See e.g. van Dyke, “The Legal Regime Governing Sea Transport of Ultrahazardous Radioactive Materials”, 33 (2002) *Ocean Development and International Law*, 77.
  27. See e.g. Currie, “The International Law of Shipments of Ultrahazardous Radioactive Materials: Strategies and Options to Protect the Marine Environment”, 1998, available at: [www.globelaw.com/Nukes/Nuclear%20Shipment%20Paper.htm](http://www.globelaw.com/Nukes/Nuclear%20Shipment%20Paper.htm).
  28. Statute of the International Court of Justice (26 June 1945) Can. T.S. 1945 No. 7, Art. 38(1)(b); North Sea Continental Shelf Cases (Germany/Netherlands/Denmark), I.C.J. Reports 1969, paras. 74 and 77; Militia and Paramilitary Activities in and against Nicaragua (Nicaragua v. USA), I.C.J. Reports 1986, p. 14, at para. 184; Brownlie, “*Principles of Public International Law*”, fourth edition, Clarendon Press, Oxford, 1990, p. 4-11; Nguyen Quoc Dinh, Daillier, Pellet, “*Droit International Public*”, fourth edition, Paris, L.G.D.J., 1992, p. 310-335; Roberts, “Traditional and Modern Approaches to Customary International Law: A Reconciliation”, 95 (2001) *American Journal of International Law*. P. 757.
  29. Fisheries case, I.C.J. Reports 1951, p. 116, at p. 131; Asylum case, I.C.J. Reports 1950, at p. 276-277; “Legality of the Threat or Use of Nuclear Weapons, Advisory Opinion”, I.C.J. Reports 1996, p. 226, S.O. Guillaume, at p. 291; Nicaragua case, *supra* note 42, at p. 106-109, and D.O. Schwebel, at p. 303; Brownlie, “*Principles of Public International Law*”, fourth edition, Clarendon Press, Oxford, 1990, p. 5; Aceves, “The Freedom Of Navigation Program: A Study of The Relationship Between Law and Politics”, 19 (1996) *Hastings International and Comparative Law Review*, 259, 303.
  30. *Lusa News Agency*, “Navios americanos tóxicos entram em águas territoriais nacionais nos Açores”, 11 November 2003, [www.ecosfera.publico.pt/noticias2003/noticia2828.asp](http://www.ecosfera.publico.pt/noticias2003/noticia2828.asp).

The arguments brought forward by the doctrine in favour of the evolution of customary law to favour the interests of coastal states seem to ignore the protests and behaviour of exporting states. Ironically, the only way to acknowledge the creation of such customary law would probably be to recognise persistent objector status on the part of countries who regularly export radioactive materials, which would render this custom useless to a large extent.

Nonetheless, it is fair to highlight that little work has been done (or at least is available) on state practice in this regard. Most of the studies available<sup>31</sup> try to ascertain states' positions from comparative analysis of their national legislation. This is insufficient. As has been demonstrated in the France-Spain-Portugal decision to exclude certain tankers transporting heavy fuel oil from their EEZs, national regulations and national practice are not necessarily in tune with one another. There are not many States around the world whose laws explicitly restrict the right of innocent passage beyond that which is allowed under the LOS Convention, but this does not prevent a significant number of them from making the above-mentioned claims. This situation creates a lack of transparency, would cause obvious difficulties for litigation before an international tribunal, and it makes well-informed opinions in this respect particularly difficult.

Other arguments have been advanced. One author suggested<sup>32</sup> that the right to refuse entry into the territorial sea of ships carrying ultra-hazardous cargoes derives from the balancing of two conflicting obligations set out in the LOS Convention: the obligation not to hamper innocent passage and the obligation to protect the marine environment. While this duality is clearly present in the Montego Bay Convention, the text itself solves the issue by stating that environmental protection measures may go only so far as allowed by the convention [Article 194].

Another argument that has been built up by doctrine is that the suspension of the right of innocent passage for such ships would derive from the application of the precautionary principle. However, it is hard to find any substance to this approach. To begin with, the international community has still to agree on the exact content of the precautionary principle.<sup>33</sup> One possible interpretation is that the content of the precautionary principle must correspond to something beyond the general principle of prevention (which has been recognised by international jurisdictions in different contexts and is explicitly mentioned in the LOS Convention). This would reduce the precautionary approach to an implication that when scientific data is uncertain as to the risks of an activity, one should err on the side of caution and of the environment. If one accepts this premise, it becomes obvious that the precautionary principle has very little relevance in this context. The risks inherent in the shipping of ultra-hazardous cargoes have been identified and analysed; the adoption of safety measures has been made mandatory to ensure the minimization of those risks.

But the truth is that the content of the precautionary principle will probably remain disputed for quite some time. Some argue that the adoption of different formulations of the principle in the legal

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31. See e.g. Hakapää & Molenaar, "Innocent Passage – Past and Present", 23-2 (1999) *Mar. Pol.*, p. 131, p. 138 *et seq.*

32. Van Dyke, "The Legal Regime Governing Sea Transport of Ultrahazardous Radioactive Materials", 33 (2002) *Ocean Development and International Law*, 77.

33. The MOX Plant case (No. 10) – Provisional Measures (ITLOS, December 2001), S.O. Judge Wolfrum and S.O. Judge Ad Hoc Székely; KNOX, "The myth and reality of transboundary environmental impact assessment", 96 (2002) *American Journal of International Law* 291, p. 293-294; Vanderzwaag, "The Precautionary Principle and Marine Environmental Protection: Slippery Shores, Rough Seas, and Rising Normative Tides", 33 (2002) *Ocean Development and International Law*, p. 165.

instruments that embody it is a conscious effort on the part of some states to prevent this principle from becoming binding as customary law.

This brings us to the main reason why the precautionary principle has little to contribute to the present analysis – it is not a binding principle of international law, or at least it has not been recognised as such by any international jurisdiction, although this argument has been put forward on several occasions. As one Judge stated in the MOX Plant Dispute case, it “is still a matter of discussion whether the precautionary principle ... has become part of international customary law”.<sup>34</sup>

Finally, even if the precautionary principle were applied to this issue, it is hard to contend how it would imply a right to refuse passage to ships carrying ultra-hazardous cargoes. It would mean interpreting the principle as prohibiting an activity simply because it is dangerous, even if its risks have been calculated and measures have been taken to minimise them as far as reasonably achievable. This solution would be unrealistic, to say the least.

Having examined all of the arguments presented by certain authors to defend the right of coastal states to prohibit transit through their territorial seas of ships carrying ultra-hazardous cargoes, and arriving at the conclusion that none of them carry enough substance, it must be recognised that international law, as it stands today, does not allow for such a restriction on the right of innocent passage.

However, this answer is disconcerting when one takes into account that more and more coastal states are refusing passage of ships carrying dangerous cargoes (not only radioactive cargoes, but also heavy fuel oil, as was the case with the above-mentioned Malaga decision), and flag states are opposing these claims only to a certain extent. There has been, to the best of my knowledge, no litigation before an international tribunal concerning such refusals, and it is not unimaginable that issues of state responsibility could be explored in this connection.

The policy of coastal states seems to be to claim the right to refuse passage, even though no precise legal basis or precedent can be quoted in favour of their position. In so doing, it is possible that the ultimate goal is precisely to cause the evolution of international customary law. And while coastal states are clearly pressing in the direction of this evolution, shipping states do not seem to be doing all they can to resist. Does this imply recognition by the shipping states that times are changing? Could we soon observe an even further reduction of their opposition to the claims of coastal states, so much so that an international tribunal would feel at ease to say that this tolerated practice would have given rise to a new custom, opening a new exception to the right of innocent passage as foreseen in the LOS Convention?

These questions must remain unanswered for now. And governments deciding national policy on this issue must be aware of the inherent risks (in terms of international litigation) of a strategy to promote an evolution of customary law. On the other hand, attempts to refuse passage are often handled at a more subtle diplomatic level, where pros and cons are weighed by the shipping state, which may agree to instruct its ships to stay clear of the waters without this implying an acceptance of such an evolution.

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34. The MOX Plant case (No. 10) – Provisional Measures (ITLOS, December 2001), available at: [www.itlos.org](http://www.itlos.org), S.O. Judge Wolfrum.



## **B. Requiring prior notification**

An issue which usually goes hand-in-hand with refusal of passage through the territorial sea of ships carrying ultra-hazardous cargoes is the requirement, now fairly widespread among coastal states, that the passage of such ships should be previously notified to them, so that appropriate precautions may be considered. Calls for such notifications were voiced by several States at the time of signature or ratification of the LOS Convention, and are now present in a number of national legislative instruments<sup>35</sup> and are also applied in practice without a clear national regulatory framework.

It should first be noted that, during the negotiation of the LOS Convention, there were several attempts to introduce the right of prior notification in cases of hazardous shipments, and all were rejected.<sup>36</sup> This is enough to conclude that the negotiators of the LOS Convention agreed on a text which did not grant coastal states the right of prior notification.

Before analysing the requisites for the formation of international customary law in this sense, to derive an obligation of prior notification from the LOS Convention implies accepting an objectivist and “actualist” method of interpreting international law (pursuant to which the correct interpretation of a treaty may evolve over time). While I would personally tend to admit such a method, it must be recognised that it is not in line with a classic approach to international law. It might even be argued that such a method of interpretation would reduce the border between written law and customary law to an imperceptible difference – a result which would fit oddly with the substantial difference in proving the existence of one and the other kind of international law.

An interesting attempt to derive the obligation of notification from the letter of the LOS Convention is the argument that **not** to provide prior notification would be a violation of the duty to consult affected states, including specifically the duty under Article 199 of the LOS Convention. This consultation is supposedly necessary to “ensure that that these dangerous cargoes pass through the safest sea lanes and to ensure that contingency plans are prepared to deal with accidents that may occur en route”.<sup>37</sup> But Article 199 only refers to situations of imminent or actual damage. Prior notification would not improve the protection of the environment or the response capability of coastal states.<sup>38</sup> Contingency plans are developed without regard to individual shipments, and sea lanes are established generally, not individually.

Several treaties negotiated since 1982 contain an obligation of notification in case of transit through the territorial sea of ships with cargoes of a pernicious nature. The most notable example is the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal<sup>39</sup> and its implementing regional treaties (Bamako Convention on the Ban of the Import into Africa and the Control of Transboundary Movement and Management of Hazardous Wastes within Africa;<sup>40</sup> Waigani Convention to Ban the Importation into Forum Island Countries of Hazardous and

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35. See e.g. Hakapää & Molenaar, “Innocent Passage – Past and Present”, 23-2 (1999) *Mar. Pol.*, p. 131, p. 142.

36. Nordquist (ed.), “United Nations Convention on the Law of the Sea: A Commentary”, *Martinus Nijhoff Publishers*, VI Vols., 1985-2002, Vol. II, paras. 23.2, 23.3, 19.6 and 19.8.

37. Van Dyke, “The Legitimacy of Unilateral Actions to Protest the Ocean Shipment of Ultrahazardous Radioactive Materials”, 1996, available at: [www.nci.org/i/ib121396.htm](http://www.nci.org/i/ib121396.htm).

38. Pedrozo, “Transport of Nuclear Cargoes by Sea”, 28 (1997) *J. Mar. L. & Com.* 207, 220-221.

39. See footnote No. 22.

40. The text of this convention is available at: [www.ban.org/Library/bamako\\_treaty.html](http://www.ban.org/Library/bamako_treaty.html).

Radioactive Wastes and to Control the Transboundary Movement and Management of Hazardous Wastes within the South Pacific Region;<sup>41</sup> *Acuerdo Regional sobre Movimiento Transfronterizo de Desechos Peligrosos*;<sup>42</sup> Protocol on the Prevention of Pollution of the Mediterranean Sea by Transboundary Movements of Hazardous Wastes and their Disposal;<sup>43</sup> Agreement between the government of the United States of America and the government of Canada concerning the transboundary movement of hazardous waste<sup>44</sup>).

While these treaties exclude radioactive waste (to the extent that they have subsequently been regulated by other instruments of international law), one might be tempted to advance an *ad majoris* argument: if states feel they should notify each other in relation to these cargoes, surely they should feel the same about cargoes of an even more dangerous nature. An obvious counterargument is that states may have purposefully decided to exclude such cargoes, e.g. for security reasons. Indeed, when specifically regulating radioactive waste, States have restricted the obligation of prior notification to the destination state.<sup>45</sup>

Another frequent argument is that the obligation to provide prior notification has become customary international law. However, proving this entails the usual problems, commencing with scarcity of information. In addition, there seem to be several examples of shipping States expressly refusing to give prior notification, usually invoking the maintenance of secrecy as fundamental for the safety of the shipment.<sup>46</sup> Also, in relation to cases where notification is provided, it would probably be arguable that this is done out of diplomatic courtesy rather than out of a sense of legal obligation (*opinio juris*).

In my view, the best way to defend the existence of an obligation of prior notification, even though it is by no means flawless, is to argue that it is the necessary corollary of the obligation of environmental damage prevention imposed on states. There are two ways to approach this argument – the first is to sustain a systematic interpretation of the LOS Convention in that sense; the second is to derive it from a general obligation of prevention in international law.

The first approach implies accepting the abovementioned objectivist method of interpreting international law. According to this approach, notifying the transit state is the minimum you can do to allow for emergency preparedness, which would contribute to decreasing the damage to the environment if an accident were to occur. A fundamental component is that to give prior notification does not hamper innocent passage. In other words, it is a small concession to one principle which significantly contributes to another principle.

The second approach is substantively very similar to the first, except that it relies on an ensemble reading of international law – it is based on a general principle of international law. The

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41. The text of this convention is available at: [www.forumsec.org.fj/docs/Gen\\_Docs/wc.htm](http://www.forumsec.org.fj/docs/Gen_Docs/wc.htm).

42. The text of this convention is available at: [www.sieca.org.gt/publico/Reuniones\\_Presidentes/xiii/acuerdo.htm](http://www.sieca.org.gt/publico/Reuniones_Presidentes/xiii/acuerdo.htm).

43. The text of this protocol is available at [www.basel.int/article11/mediterranean.doc](http://www.basel.int/article11/mediterranean.doc).

44. The text of this agreement is available at [www.basel.int/article11/canada-us-e.doc](http://www.basel.int/article11/canada-us-e.doc).

45. Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, IAEA INFCIRC 546 (1997).

46. Hakapää & Molenaar, “Innocent Passage – Past and Present”, 23-2 (1999) *Mar. Pol.*, 131, 142; Keyuan, Zou, “Navigation of foreign vessels within China’s jurisdictional waters”, 29-4 (2002) *Marit. Pol. Mgmt.* 351, 362-363.

above mentioned waste treaties could contribute to the demonstration of the existence of this principle. More importantly, it has already been declared by international jurisdictions, in cases such as Strait of Corfou<sup>47</sup>, Trail Smelters<sup>48</sup> and Lake Lanoux.<sup>49</sup>

Both approaches, however, run into difficulty in justifying the “secrecy for reasons of security” claim. On the other hand, one may wonder whether the legitimacy of this claim is reduced at a time when shipments of ultra-hazardous cargoes are widely publicised by environmental protection NGOs.

More importantly, both these approaches try to establish a specific implicit or customary obligation by seeking general obligations from which it could be derived. In so doing, they fail to tackle the fact that a general rule can have exceptions. In order to determine whether there is an obligation under international law of prior notification of shipments of ultra-hazardous substances, one cannot escape analysing the specific state practice and *opinio juris*, which, as has already been mentioned, are not sufficiently uniform to be favourable to the interests of coastal States.

It has also been suggested that this entire discussion has become somewhat moot, precisely because national governments are usually informed, from different sources, of ultra-hazardous shipments. This is not very convincing, however. Not all shipments of ultra-dangerous cargoes receive the same media or civil society attention, and not all are covered by general mandatory information systems. The obligation to notify transit states would ensure the possibility of readiness, eliminating any uncertainty as to the availability of information.

It seems that in the academic world, the opinions in favour<sup>50</sup> are clearly outweighed by the opinions against<sup>51</sup> the existence of this obligation. One author suggested that the favourable opinions “must be understood more as advocacy than as a disinterested appraisal of the current state of international law”.<sup>52</sup> While one may be inclined to agree, it is hard to do so without hesitation, essentially

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47. Corfu Channel (United Kingdom/Albania), I.C.J. Reports, 1949, p. 4.

48. Trail Smelter Arbitration (United States/Canada) (1905), UNRIAA, vol. III, p. 1965.

49. Lake Lanoux Arbitration (France/Spain), UNRIAA., vol. XII, p. 281.

50. Currie, “The Right to Control Passage of Nuclear Transport Vessels under International Law”, 1995, and “The International Law of Shipments of Ultrahazardous Radioactive Materials: Strategies and Options to Protect the Marine Environment”, 1998, both available at: [www.globelaw.com/Nukes/Nuclear%20Shipment%20Paper.htm](http://www.globelaw.com/Nukes/Nuclear%20Shipment%20Paper.htm); Van Dyke, “The Legitimacy of Unilateral Actions to Protest the Ocean Shipment of Ultrahazardous Radioactive Materials”, 1996, available at: [www.nci.org/i/ib121396.htm](http://www.nci.org/i/ib121396.htm), “The Legal Regime Governing Sea Transport of Ultrahazardous Radioactive Materials”, 33 (2002) *Ocean Development and International Law*, 77 and “Active Sonar & Shipments of Radioactive Materials”, 2002 *Colorado Journal of International Environmental Law and Policy* 1; Marin, “Oceanic Transportation of Radioactive Materials: The Conflict Between the Law of the Seas, Right of Innocent Passage and Duty to the Marine Environment”, 13 (2001) *Fla. J. Int'l L.* 361.

51. Chircop, “Ships in Distress, Environmental Threats to Coastal States”, and “Places of Refuge: New Directions for an Ancien Regime?”, 33 (2002) *Ocean Development and International Law*, 207, 211; Hakapää & Molenaar, “Innocent Passage – Past and Present”, 23-2 (1999) *Mar. Pol.*, 131, 141; Fidell, “Maritime transportation of plutonium and spent nuclear fuel”, 31 (1997) *Int'l L.* 757; Pedrozo, “Transport of Nuclear Cargoes by Sea”, 28 (1997) *J. Mar. L. & Com.* 207, 220-221; Rothwell, “Navigational rights and freedoms in the Asia Pacific following entry into force of the Law of the Sea Convention”, 35 (1995) *Virginia Journal of International Law* 587, 602.

52. Fidell, “Maritime transportation of plutonium and spent nuclear fuel”, 31 (1997) *Int'l L.* 757.

because this is much more of a borderline case compared to the right to refuse passage to ships carrying ultra-hazardous cargoes.

As regards an obligation of prior notification in cases of transit through the EEZ of a third state, the arguments are essentially the same as for the territorial sea, especially when one considers that in both areas the coastal state has an equal obligation to protect the marine environment. It can nonetheless be noted that the Basel Convention doesn't seem to provide for prior notification in cases of transit through the EEZ, since by using the expression "through which" [Article 2(12), read together with Article 2(13) and Article 4(2)(f)], that convention seems to be referring to the territory of states, the same being applicable to its implementing treaties.

#### **IV. Conclusion**

The analysis carried out in this paper suggests that coastal states would probably fail to persuade an international tribunal of the existence of the right to deny passage of ships carrying ultra-hazardous cargoes through their territorial seas, much less through their exclusive economic zones. The same applies to the obligation to provide (or right to require) prior notification of such passage. This may partly explain why no international litigation concerning these issues has so far taken place, even though there have been a number of conflicts between coastal states and shipping states, widely publicised in the media.

Still, evidence suggests that officers at the head of authorities in several coastal states, often non-legal experts, firmly believe in the existence of these rights and obligations, at least insofar as concerns the territorial sea. The gap between the law and practice seems to be widening. At the same time, several states are clearly pursuing a policy of pushing for an evolution of customary law, either by claiming that this evolution has already taken place, or that the letter of this or that treaty already allows for their claims. It would not be surprising if this strategy should succeed eventually. For the time being, however, one must not be too hasty to confuse diplomatic concessions with an evolution of the law.

# STUDIES

## **Insurance Coverage for Third Party Liability and Material Damage Arising From Nuclear Incidents Caused by Terrorist Acts**

**by the OECD/NEA Secretariat\***

### **Introduction**

The OECD Nuclear Law Committee first began looking at the impact of terrorist acts upon the nuclear liability insurance market in November 2001, shortly after the attacks which took place in the United States on 11 September of that same year. The Committee was concerned about the impact which terrorist acts might have on the ability of nuclear operators to obtain third party liability and material damage insurance coverage for nuclear incidents resulting from such acts.

While the major international nuclear liability conventions in force, the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy and the 1963 Vienna Convention on Civil Liability for Nuclear Damage as amended by the 1997 Protocol to Amend the (1963) Vienna Convention, together with the legislation of many non-convention countries, exempt a nuclear operator from liability for damage caused by a nuclear incident directly due to an act of armed conflict, hostilities, civil war or insurrection, the prevailing view is that this exemption does not apply to acts of terrorism. This same view applies equally to the Convention on Supplementary Compensation for Nuclear Damage which, although adopted in 1997, has not yet entered into force.

### **Evolution in Insurance Coverage**

The observer from the European Insurance Committee (EIC) had informed the Committee early on in its study of the matter that, unlike the risk of war, the risk of terrorist attacks on nuclear installations had historically been included in nuclear insurance policies. Insurers have always been aware of the latent threat of attacks against nuclear installations by opponents of nuclear energy and thus the threat of terrorism was not considered to be a new phenomenon. In addition, they had always considered the possibility that an accident caused by a terrorist attack could result in catastrophic damage, not only material damage, but third party damage as well.

What *was* considered to be a new phenomenon for insurers after the 11 September attacks was the possibility of simultaneous terrorist attacks on several nuclear installations which would completely exhaust all material damage and nuclear third party liability coverage. Such a risk is not unrealistic, given that nuclear installations are considered to rank among the principal terrorist targets.

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\* This note was prepared by the OECD/NEA Secretariat on the basis of replies to a questionnaire circulated to members of the OECD Nuclear Law Committee (NLC).

In the event of such attacks, the existence of the entire international nuclear insurance pooling system would be threatened as well as the existence of the actual pools concerned.

The attacks of 11 September 2001 therefore led the insurance industry to look much more critically at the risks to which it was exposing its capital and the extent to which it was willing to continue doing so. As a result, insurers are now generally unwilling to provide full third party liability or material damage coverage for risks of that magnitude. However, for some time now they have been exploring ways of solving the coverage problem which would enable them to maintain their responsibilities to nuclear operators while ensuring the protection of their own industry. For third party liability coverage, the solutions must take into account the fact that nuclear operators are obliged by law to maintain a specific amount of financial security (whether under international nuclear liability conventions or national legislation) which, of course, is not the case for material damage coverage.

In particular, the international nuclear insurance pooling system has been looking at whether insurance pools could join forces in order to make a meaningful amount of terrorism coverage available world wide, and it is now clear that, at least as regards material damage and related types of protection, operators can buy limited amounts of terrorism coverage, subject to additional premiums. As for third party liability, the extent to which terrorism coverage will be available to an operator in the amount required by its national law depends on several factors:

- the insurers' perception of the risk of terrorism in the country concerned (the United States and the United Kingdom are seen as more likely targets of terrorism than certain other countries);
- the strength/capacity of the national insurance market in the country concerned;
- the willingness of the national insurance market in the country concerned to assume terrorist risks altogether; and
- the legally imposed amount of operator liability in the country concerned (the higher the amount, the less likely it is that the available insurance will cover the entire amount).

It is true that in many countries today, terrorism risks are fully included in the insured limit under nuclear liability policies, but this is largely due to the fact that the operator's liability amount is relatively modest. It can be expected that following increases in operator liability amounts pursuant to recent amendments to the international nuclear liability conventions which are already in force or pursuant to the entry into force of new international instruments in the field, more insurance pools will be faced with a shortage of terrorism insurance capacity. This shortage is a matter that must be resolved by operators, insurers and governments together.

## **Part I. Financial Security for Third Party Liability**

### ***Legal Obligation to Cover Third Party Liability***

As a first step, it is important to determine whether there exists, in general, a legal obligation to insure or otherwise financially secure third party liability in case of a nuclear incident.

Apart from Greece, Turkey, Australia, Ireland and Luxembourg, all countries confirm that there is a legal requirement in their country for an operator of a nuclear installation to maintain financial security in respect of its liability to third parties for damage resulting from a nuclear incident occurring at that operator's nuclear installation. The relevant national legislation is set out in Annex 1 attached

and the required financial security amounts are set out in Annex 2 attached. The legal requirement for an operator of a nuclear installation to maintain financial security in respect of its third party liability also applies to damage resulting from a nuclear incident during the transport of nuclear substances to/from that operator's installation.

Greece and Turkey each have only one 5 MW research reactor. Australia has a 10 MW research reactor and is currently commissioning a 20 MW research reactor. Neither Ireland nor Luxembourg has any nuclear installations at all. Not surprisingly, there is no legislation governing nuclear third party liability or financial security requirements with respect thereto in any of these five countries. Rather, these matters are governed by the principles of general tort law, although in Luxembourg a draft law on these matters does exist.

Almost all countries confirm that there is a legal obligation to have financial security for third party liability arising from an incident at a nuclear installation, or during the course of transport of nuclear substances. In some countries there are no exceptions to the financial security requirements (Belgium, Korea, Lithuania, and Slovenia). However, in others, exemption from financial security requirements is granted in particular circumstances:

- where the nuclear operator is the government or a government-owned entity (Austria, Canada, Germany, Norway and Switzerland); or
- where the nuclear installation itself is government-owned (Denmark, Finland, Norway, Spain); or
- where government guarantees the payment of compensation for nuclear damage (Austria); or
- where nuclear installations or nuclear substances are considered to be of very low risk, such as a teaching reactor (Czech Republic and the United States); or
- where only small quantities of nuclear material or radioactive waste are involved (the Slovak Republic); or
- where transport activities take place completely outside of Paris Convention countries (the United Kingdom).

In addition, although there are no "exemptions" from financial security requirements in the United States, a separate scheme exists for coverage of public liability arising from U.S. Government activities and those of its contractors in the event of a nuclear incident.

### ***Forms of Financial Security to Cover Third Party Liability***

In only a few countries is insurance the only acceptable form of financial security to cover third party liability obligations (Austria, Canada, Czech Republic and Slovenia). Most countries' national laws allow nuclear operators to financially secure their liability obligations by other means as well, such as a private guarantee, usually on condition that those means are judged acceptable by the appropriate authorities (Belgium, Denmark, Finland, France, Germany, Italy, Korea, Lithuania, the Netherlands, Norway, Romania, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom and the United States). In practice, however, most nuclear operators resort to insurance to cover their liability entirely, even where other options are permitted (Belgium, Finland, France, Hungary, Italy, the Netherlands, Romania, the Slovak Republic, Spain, Sweden, Switzerland, the United Kingdom and the United States). In Lithuania, the sole nuclear operator is the State and it

maintains a special compensation fund to which it contributes from revenues gained from the sale of electricity. In Australia, the State-owned nuclear operator holds a public liability insurance policy but also enjoys the benefit of an indemnity issued by the Australian Government to cover third party damage.<sup>1</sup> In Korea, an indemnification contract may be entered into by the nuclear operator with the Korean Government under which the latter must provide financial security for those risks which are not covered by private insurance (e.g. nuclear incidents due to natural disasters).

Under German legislation, the operator of a nuclear reactor with power in excess of 495 MW/th must maintain financial security of 2.5 billion euros (EUR).<sup>2</sup> This amount is provided by a combination of private insurance and mutual guarantees furnished by the various companies involved in electricity production. A “Solidarity Agreement” concluded between the four leading electricity producers in Germany<sup>3</sup> stipulates that the first tier of financial security shall be provided for by insurance of EUR 255 645 million, with the second tier of EUR 2 244 355 million being provided for by guarantees furnished by the partners under the Agreement. In addition, a further EUR 112 million is to be provided by these same partners to finance claims handling costs arising from a nuclear accident. The partners are to provide German nuclear power plant operators with the full amount of the second tier for each nuclear accident, regardless of whether the first tier is available, where neither the nuclear operator nor its parent company is in a position to provide compensation in the amount of that second tier.

Each partner is obliged to provide a percentage of the second tier calculated on the basis of the thermal power of its nuclear power reactors and where a power plant or shares therein are sold, the new owner must become a partner under the Agreement. Partners who have paid their contribution have a right of recourse against the liable nuclear operator although victims’ claims for compensation have priority over that right. In order to ensure that the partners’ guarantees are reliable, each partner is required to produce annually an official certificate of an accountant attesting to the fact that the partner’s available cash flow is twice the amount of its required contribution to the second tier.

In Germany, operators of reactors with lower thermal power and operators of other nuclear installations are required to maintain lower amounts of financial security, these amounts being determined according to the risks associated with each installation and to relevant regulations.<sup>4</sup> These operators cover their liability exposure in respect of their installations and in respect of their transportation activities exclusively by insurance. Liability arising in connection with a State-owned nuclear installation (e.g. research reactors) may be covered by a State guarantee.

### ***Third Party Liability Insurance***

Where nuclear operators do maintain insurance to secure their third party liability, a distinction may be made between insurance that applies “per incident” or “per transport” and insurance that applies “per lifetime of the installation”. An example helps to clarify this distinction. Imagine a

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1. In Australia, the indemnity effectively indemnifies suppliers to the nuclear operator, providing a protection similar in effect to that afforded by the legal channelling of third party liability under the international nuclear liability conventions.
  2. See Section 13(3) of the Atomic Energy Act and Section 9 of the 1977 Nuclear Financial Security Ordinance, as amended in 2002.
  3. Energie Baden-Württemberg AG, Karlsruhe; E.ON Energie AG, München; *Hamburgische Electricitätswerke-Werke* AG, Hamburg; R W E AG, Essen.
  4. Detailed regulations are set out in the 1977 Nuclear Financial Security Ordinance, as amended in 2002.



nuclear operator which has insured its third party liability in respect of nuclear damage up to EUR 700 million. Five years after the commissioning of the plant, an incident takes place causing nuclear damage of EUR 200 million. The idea of “per incident” is that the insured amount is fully available for each and every incident that may occur so that in the example, the EUR 200 million damages will be paid and the nuclear operator will have to renegotiate payment of a premium in order to have the full EUR 700 million made available again for damage caused by any future incident.

The idea of “per lifetime of the installation” is that the insured amount is fully available during the entire life-time of the plant. However, when the insurer pays damages in case of a nuclear incident, the amount of these damages will be deducted from the insured amount. In the above example, this means that the EUR 200 million will be deducted from the EUR 700 million so that only EUR 500 million will be available for future incidents. The operator will therefore either be required to negotiate the reinstatement of the full EUR 700 million after the incident or, depending on the State of the installation following the loss, the government will have to assume liability for damage arising from for future incidents to the extent that the full EUR 700 million is no longer available through private financial security.

Where operators do maintain insurance to cover their third party liability obligations for nuclear damage, most countries indicate that insurance applies on a “per incident” or “per transport” basis (Austria, Canada, Czech Republic, France, Germany, Hungary, Italy, Korea, the Netherlands, Romania, the Slovak Republic, Slovenia, Spain, the United Kingdom and the United States). The operator is required to negotiate the reinstatement of the full policy limit, if necessary, after an incident (Finland, the Netherlands and Spain), or to renew its coverage within 60 days after an incident (Belgium). In Sweden, insurance may be obtained on a “per incident” basis but Swedish operators prefer the available alternative of obtaining insurance for an agreed amount to cover their liability, after deduction of damages paid out under that policy. In Norway, third party liability insurance applies on a “per incident” basis but this is of theoretical interest as nuclear facilities are all covered by State guarantees rather than by insurance.

Contrary to all other countries, in Germany,<sup>5</sup> Switzerland and the United Kingdom, coverage is understood to be for the life-time of the installation. In reality, the distinction between the two types of coverage is not really significant, since insurers may not be prepared in either case to insure an operator once a catastrophic incident has occurred. In any event, such an incident would likely cause the permanent shut-down of that facility.

Generally speaking, certain risks are *excluded* from insurance policies simply because nuclear operators are not liable for third party damage resulting from those risks under applicable national legislation. This is usually the case damage caused by a nuclear incident resulting from an armed conflict or insurrection. However, even where nuclear operators *are* liable for nuclear damage resulting from specific risks under applicable national legislation, insurers may still exclude those risks from their third party liability policies where they are unable or unwilling to cover them. This is the case, for example, with nuclear damage caused by routine emissions of radioactivity. In their responses, Canada, Finland, the Netherlands, the Slovak Republic, Slovenia, Spain, Sweden and Switzerland distinguish between these two types of exclusions to greater or lesser degrees, but for the remaining countries the reasons behind the exclusion of certain risks are not always clear. Denmark and Lithuania indicate that since their nuclear installations are State-owned, the operators of those

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5. In Germany, when coverage is reduced by more than 20%, the operator must obtain reinstatement of full coverage.

installations do not carry third party liability insurance.<sup>6</sup> In Austria, financial security requirements do not extend to liability for damage resulting from war, armed conflict, civil war, riot or rebellion. The following is a list of the most frequently cited exclusions from nuclear third party liability insurance policies. Where a country has specified that the exclusion arises from the absence of liability on the part of the operator for damage caused by that risk, it is so indicated by an (\*) and where it has specified that the exclusion arises from the inability or unwillingness of insurers to provide coverage for that risk, even if the operator is legally liable for it, then it is so indicated by (\*\*):

- Third party damage caused by a nuclear incident resulting from an act of armed conflict, hostilities, civil war, insurrection and other similar acts of mass violence (Australia, Belgium, Canada\*, Finland\*, France, Germany, Italy\*, Hungary, Korea (including military or usurped power), the Netherlands\*, Romania\*, the Slovak Republic\*, Slovenia\*, Spain\*, Sweden\*, Switzerland\*, the United Kingdom, Ukraine\*) or war only (the United States); According to the EIC, third party damage caused by acts of war is excluded from all insurance policies everywhere, although the definition of such acts may vary from country to country.
- Third party damage between CHF 500 million and 1 billion resulting from terrorist acts where financial security at an affordable cost is not available (Switzerland\*\*); or, third party damage resulting from terrorist activities in general (Romania\*); or, third party damage resulting from acts of terrorism or violence directed to the overthrow of the government in power (Australia).<sup>7</sup>
- Third party damage caused by a nuclear weapon or any explosive device utilising nuclear material (Canada\*\*) or third party damage caused by the manufacture, supply, maintenance and use of any weapon or other instrument of war for purposes other than the peaceful uses of nuclear energy. Also, third party damage caused by arms or engines that are intended to explode through a modification of the structure of the nucleus of the atom (France). According to the EIC, third party damage caused by nuclear weapons is excluded from all insurance policies everywhere.
- Third party damage resulting from an incident caused by a grave natural disaster such as an earthquake, tidal wave, typhoon etc. (Czech Republic, Finland\*, France, Germany, Italy\*, Korea, the Netherlands\*\*, Romania\*, the Slovak Republic\*, Slovenia\*, Spain\*, Sweden\*, Switzerland\*, Ukraine\*).
- Damage to nuclear substances and to their packaging in the course of being transported and damage to other goods being transported on the same means of transport (Belgium, France);<sup>8</sup> damage suffered by the means of transport on which the substances are being transported (Canada\*, France, Slovenia\*, the Slovak Republic\*), the means of transport of which the nuclear installation forms a part (Canada\*), or the place of storage incidental to the transport (Canada\*).

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6. In Lithuania, nuclear operators pay contributions to an independently managed fund which serves to compensate third party nuclear damage.

7. In Australia, nuclear operators hold a public liability insurance policy but also benefit from an indemnity issued by the Government. Unlike the former policy, the latter contains no exclusions.

8. In France, nuclear operators may include nuclear damage to the means of transport and nuclear damage to nuclear substances and to other goods being transported on the same means of transport in their insurance policy provided that they pay an extra premium and that they comply with specific conditions. The extent of coverage may vary from one operator to another.

- Third party liability for injury or damage to a person caused by a nuclear incident occurring as a result of the unlawful act or omission of that person with the intention of causing injury or damage (Canada\*, Spain\*,<sup>9</sup> Slovenia\*); third party liability for damage caused by intention, criminal act or fraud on the part of the operator (France, Korea, the Netherlands\*\*).
- Third party damage for which claims are brought ten years or more after the nuclear accident has occurred (Korea, the Netherlands\*\*,<sup>10</sup> United Kingdom, Australia) unless otherwise provided by legislation (Canada\*, the Slovak Republic\*) or 20 years after the loss, theft, release or loss of possession of nuclear substances (Korea, France,<sup>11</sup> Switzerland\*\*). In Canada, the Government agrees to reinsure coverage beyond ten years, up to the absolute time limit, if a national regulation were to be adopted extending the ten-year limitation period. In Switzerland, the Government will compensate third party damage up to CHF 1 billion if claims are brought beyond the ten-year time limit. According to the EIC, no nuclear insurer anywhere provides third party liability coverage for claims made more than ten years after a nuclear accident. Some do, however, offer longer periods of cover for damage resulting from lost/stolen material.
- Third party damage resulting from the operation of a nuclear installation without a licence or performing tests not conforming to the licence conditions (the Netherlands\*\*, United Kingdom). According to the EIC, a licence is a prerequisite for insurance of a nuclear site, therefore insurance cover for an operator without a licence is not normal.
- Third party damage relating to routine emissions (Australia, Canada\*\*, Korea, the Netherlands\*\*); also, third party damage caused by small amounts of nuclear material assumed not capable of causing nuclear damage as established by the regulatory authority (the Slovak Republic\*).
- Third party damage caused by any release of ionising radiation into the atmosphere or any other place where it would normally come into contact with third parties and where the quantities of radiation exceed the limits permitted by regulation or where, in the normal course of operation of a nuclear installation, the excess has been knowingly authorised by the operator or his delegate (France).
- Third party damage resulting from the final disposal of radioactive waste (Italy\*\*, Slovak Republic\*).
- Third party damage that takes the form of personal injury that is not bodily injury (Canada\*\*).

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9. In Spain, the law permits this exception, whereas the insurance policies do not mention it. Thus, the law enables the courts to declare that the operator is not liable in respect of damage to a person having intentionally caused an accident. If the courts release the operator from liability in this manner, it is not necessary to refer to the insurance policy.

10. Operators in the Netherlands are liable for loss of life and personal injury up to 30 years from the date of the nuclear incident, but as insurers do not provide coverage for more than 10 years, the Government covers third party liability claims if they are brought between 10 and 30 years after the nuclear incident.

11. In France, the loss, theft, release or loss of possession of nuclear substances must have occurred during transport. Claims for third party damage must be brought at the latest 20 years after the loss, theft or release of possession but the damage must have been notified to the insurer within 10 years after the cancellation or termination of the insurance policy.

- Third party damage resulting from injury to an insured's employees to the extent of any compensation paid through a workers', unemployment, disability or similar compensation scheme (Australia, Canada\*\*, Spain\*, the United States); also, damage arising from occupational disease or accidents suffered by the operators' employees in the course of their employment (Korea, the Slovak Republic\*\*, Spain\*).
- The cost of preventive measures taken at the nuclear installation itself (Korea) and expenses incurred in not complying with relevant legislation (e.g. the Disaster Management Act in Korea).
- Liability for damage suffered by the operator of the nuclear installation (Belgium, France, Korea and the Slovak Republic<sup>12</sup>), damage caused to the installation itself or to another nuclear installation on the same site, or damage to property on that same site used or intended to be used in connection with one of these installations (Belgium, Canada\*, France, Korea, the United States); damage caused to goods not owned by the operator but in its possession for use at the site of the nuclear installation (Korea, the Slovak Republic\*\*), all on the grounds that such liability is not related to damage suffered by third parties.

### ***Third Party Liability for Nuclear Damage Caused by Terrorist Acts***

While the legislation in most countries does not explicitly refer to it, liability for damage suffered by third parties as a result of a nuclear incident caused by a terrorist act is nevertheless imposed upon nuclear operators simply because terrorist acts are not a reason to exonerate the operator from such liability. Almost all countries confirm this (Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Italy, Korea the Netherlands, Norway, the Slovak Republic, Slovenia, Spain, Sweden, the United States,<sup>13</sup> the United Kingdom, Ukraine and Switzerland). Ireland noted that “persons liable are likely to be, apart from the perpetrators, the nuclear operator (foreign) by reason of strict liability for extra hazardous operations, any persons whose negligence may have caused or permitted the incident.”<sup>14</sup>

However, not all countries impose liability upon nuclear operators for damage suffered by third parties as a result of a nuclear incident caused by a terrorist act. Examples of such countries are Australia, Lithuania, Romania<sup>15</sup> and Ukraine. In Romania, nuclear damage caused by a terrorist act is covered by the government but in the other countries the question as to who is liable for such damage is not specifically governed by national legislation and would probably be determined by common law rules.

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12. For the Slovak Republic, this would appear to be limited to loss of profits.

13. Provided, however, that the act of terrorism is not an act of war.

14. There is no legal requirement in Ireland to financially secure such liability.

15. In Romania, the Law on Civil Liability for Nuclear Damage exonerates nuclear operators from liability for nuclear damage if it is proven that the damage is the direct result of an act of armed conflict, civil war, insurrection or hostility. The Romanian authorities seem to adhere to a wide interpretation of the notion of “hostility” so as to cover terrorist acts.

### ***Financial Security for Third Party Liability for Damage Caused by Terrorist Acts***

Nuclear operators in countries having legislation that renders them liable for third party damage caused by a terrorist act normally financially secure that liability by insurance (Belgium, Czech Republic, Finland, France, Germany, Hungary, Italy, Korea, the Netherlands, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, the United Kingdom and the United States). Canada noted that before the terrorist acts of 11 September 2001, nuclear damage arising from terrorist acts would have been covered by private insurance under the operators' Third party liability policy. However, after these terrorist acts, the available insurance coverage was limited and it was decided to cover this risk both through private insurance and through government reinsurance.

In Denmark, there are only State-owned installations for which no financial security is required. In Norway, third party liability for nuclear damage caused by a terrorist act is covered by State guarantees rather than by insurance. In Ukraine, nuclear operators are not relieved from liability for third party damage caused by terrorist acts but since they are not legally obliged to obtain insurance to secure this risk, they would normally financially secure their liability through alternative means. However, as this is not done in practice, the Government will normally be bound to pay for such damage.<sup>16</sup>

Most countries confirm that, at least for existing liability amounts, full coverage for this particular risk is included in the overall coverage provided by the insurer (Belgium, Czech Republic, Finland, France, Germany, Italy, Korea, the Netherlands, Norway, the Slovak Republic, Slovenia, Spain and Sweden). Available insurance coverage for nuclear damage arising from terrorist acts has been limited, however, since 11 September 2001, in both Canada and Switzerland.

Where full coverage for that liability is not available under the operator's insurance policy, some countries have invented specific solutions. In Switzerland,<sup>17</sup> the required financial security of CHF 1 billion is provided half by private insurers and half by Government insurance, directly to the operator. In Canada, insurers were able to continue to provide private insurance coverage during 2002, but for 2003 and 2004, insurers excluded this risk from their coverage, with the result that the Government reinsured 100% of the terrorist risk for those years. For the 2005 and 2006 policy years, the Government of Canada successfully negotiated with the insurers to provide 20% private insurance coverage for the terrorist risk, with the remaining 80% covered by Government reinsurance. In the USA, only part of the risk is provided by the private insurance market. US nuclear insurers have indicated that acts of foreign sponsored terrorism are fully covered under policies issued by them with no limit on the aggregate amount that can be paid out for such events, while acts of domestic sponsored terrorism are covered only up to an aggregate amount of 300 million US dollars for all such events under all policies. The Price-Anderson Act provides that on top of available insurance, a utility pool operates and makes available "retrospective premiums" from all operators, so that the Government does not assume the uninsured risk. It is also noteworthy that in the United States, the Terrorism Risk Insurance Extension Act (TRIEA) continues to support the availability of commercial insurance by sharing in the cost if, on an industry wide basis, it exceeds certain limits established by the TRIEA. This process was designed to give the market time to price terrorism insurance coverage realistically and to avoid the detriment to business that could occur from the lack of available terrorism insurance. Insurers covered by that act are prohibited from ceasing to cover terrorism risks.

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16. See article VII of the 1963 Vienna Convention on civil liability for nuclear damage.

17. Private insurers provide half of the required financial security of CHF 1 billion + 100 million for interests and costs. The Government provides operators with insurance coverage of up to CHF 500 million + 50 million for interest and costs.

## Part II. Coverage of Material Damage

### *Insurance of Material Damage*

Fourteen countries have indicated that their nuclear operators regularly purchase one or more of the several types of insurance listed below (Belgium,<sup>18</sup> Czech Republic, Finland, Germany,<sup>19</sup> Korea, the Netherlands, Romania, the Slovak Republic, Slovenia, Spain Sweden, Switzerland, the United Kingdom and the United States):

- (a) material damage;
- (b) machinery breakdown;
- (c) clean-up expenses;
- (d) business interruption;
- (e) construction all risk (building/rebuilding nuclear facilities);
- (f) other types of non-liability insurance.

In the case of business interruption insurance in particular, Belgium, Italy, Slovenia, Spain, Sweden and the United Kingdom noted, either directly or indirectly, that their operators carry such insurance, with the Netherlands indicating that it is available but not often purchased, the United States indicating simply that it is available and Korea indicating that none is carried. Only Korea reported that its operators maintain other types of non-liability insurance referred to in (f) such as document and computer system coverage. France reported that there was no common insurance strategy amongst its nuclear operators regarding material damage and other such risks and that each operator makes its own decisions based on its risk assessment and available financial resources. Italy reported that nuclear operators carry insurance for material damage (“All Risks” policy) but not the other categories of risk. In Lithuania, there are no common legal requirements on insurance of material damage, thus the operator makes its own decision on this issue.

The amount of cover varies significantly based upon the nature, size and age of the installation in question and the type of activities in which the operator engages. In Finland, for example, overall insurance limits approximate EUR 1 billion. In Germany coverage for material damage/clean-up expense and for machinery breakdown is approximately EUR 410 million with a limitation of EUR 100 million for damage resulting from a terrorist act. In Italy, the sole nuclear operator maintains an “All Risks” insurance policy covering material damage in the amount of EUR 5 million. In Korea, material damage, machinery breakdown and clean-up expenses coverage are insured for around USD 1 billion and this includes other types of non-liability insurance. Nuclear operators in the Slovak Republic maintain “material damage/decontamination costs” insurance coverage with an annual limit of EUR 125 million including a EUR 5 million sub-limit for flood damage. In Slovenia, nuclear operators maintain “material damage/clean-up expenses” insurance with a limit of approximately USD 800 million, “machinery breakdown” coverage with a limit of USD 150 million and business interruption cover. In Spain, material damage/clean-up expenses/machinery breakdown policies are provided up to a total maximum of EUR 6 million. Swiss nuclear operators maintain “material damage” coverage ranging between CHF 833 and 1 500 million, depending on the characteristics of the particular installation and the insured’s preferences. In the United States, the maximum available

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18. Generally speaking coverage is 100% with both a deductible portion and an aggregate limit.

19. “Construction all risk” coverage is obtained only where required, as is currently the case for local interim storage facilities for irradiated fuel rods.

property damage insurance is USD 2.75 billion and operators are required to purchase USD 1.06 billion of same although they usually purchase higher amounts. The maximum available amount of business interruption insurance is USD 490 million.

The risks normally *excluded* from such policies include war and warlike events, nuclear weapons, floods, earthquakes, volcanic eruptions, wear and tear, corrosion (stress and otherwise), insured's intentional act, and other standard exclusions for the insurance industry. Terrorist acts are excluded risks under material damage/decontamination cost policies in the Slovak Republic, under construction/all risk policies in Germany, under all casualty insurance policies in Sweden and are partially excluded under material damage policies in Switzerland.

Neither Canada nor the United Kingdom provided information on the types or amounts of insurance coverage actually maintained on the grounds that it is commercially confidential information, while Finland withheld information only on the amounts of coverage for the same reason. Denmark indicated that since its nuclear installation is State-owned, its operator does not carry any of the listed types of insurance. Lithuania specified that the operator is subject to no legal requirements with regard to insurance of nuclear risks and therefore it makes its own decision on this issue. At the present time, the operator (the State) does not maintain insurance with regard to most of the risks listed, but it does maintain insurance of the risks regarding to material damage where deemed reasonable.

### ***Insurance of Material Damage Caused by Terrorist Acts***

Most countries responded that full coverage for nuclear damage resulting from a terrorist act is not provided under operators' material damage policies and other similar types of insurance. In some cases only partial coverage is provided (Finland, France, Germany,<sup>20</sup> Korea, the Netherlands, Slovenia, Switzerland and the United Kingdom<sup>21</sup>), whereas in others no coverage is available at all (Belgium,<sup>22</sup> Czech Republic, the Slovak Republic and Sweden<sup>23</sup>). In Italy, full coverage for material damage resulting from a terrorist act is available under the "All Risks" policy which its operator has obtained (with exceptions in respect of damage resulting from the interruption of work, from lack of energy, from the alteration of products or from lack of controls) and in the Netherlands full coverage is provided under the policies normally purchased by nuclear operators. In the United States, it is presumed that full coverage for damage resulting from a terrorist act is available under material damage (and similar types of) insurance issued by nuclear insurers for both domestic and foreign-sponsored terrorist acts.

In countries where full coverage is not available, amounts of coverage vary considerably depending upon the risk assessment, the insurer's market capacity and the operator's view of the need to insure against this risk. In Belgium the proportion of coverage provided may range from 30-100% of the global coverage amount, in Finland it is approximately 30%, in France it may not be less than

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20. Partial coverage is provided under material damage/clean-up expenses and machinery breakdown policies, but not under construction all risk policies.
  21. It would appear that damage arising from a terrorist act is covered under these policies only where the act results in a fire or explosion.
  22. Terrorist acts are normally excluded risks under material damage policies but coverage may be purchased through a separately issued policy.
  23. Terrorist risks are excluded from casualty insurance policies, but an operator may purchase such coverage through a separately issued policy.

20% of the global cover and in all cases except the transport of goods, it may not be less than EUR 20 million. In Korea, the coverage is limited to up to USD 300 million. In Slovenia, coverage of only USD 100 million is available under the operator's material damage insurance policy. In Sweden, an operator may purchase up to approximately SEK 3 billion to cover all of its plants for a one year period. In the United Kingdom, insurance is only available for fire and explosion damage caused by terrorism. In Switzerland, material damage to nuclear power plants caused by terrorist acts is insured in two ways; The Swiss Nuclear Insurance Pool provides coverage up to CHF 500m/year for all nuclear power plants in Switzerland. In addition to this collective insurance, nuclear operators each have their proper insurance that may cover claims up to EUR 100 million. The situation in the United States is already described in the section entitled "Financial Security for Third Party Liability for Damage Caused by Terrorist Acts". It is not always clear how the operator protects itself against its uninsured risk exposure in cases where full coverage is not available. France, Finland, Korea and Sweden indicate that their operators would simply have to assume this risk without insurance protection, and Switzerland notes that its operators have a self-insurance scheme providing up to EUR 100 million. As noted above, the situation in the United States is already described in the section entitled "Financial Security for Third Party Liability for Damage Caused by Terrorist Acts".



*Annex I*

Legislation requiring Nuclear Third Party Liability Insurance or other Financial Security

1.	Australia	No existing legislation.
2.	Austria	Federal Act on Civil Liability for Damage by Radioactivity (Act on Nuclear Liability, 1999).
3.	Belgium	Law of 22 July 1985 on Civil Liability in the Field of Nuclear Energy, as modified by the Law of 11 July 2000.
4.	Canada	Nuclear Liability Act [R.S. 1985, c. N-28].
5.	Czech Republic	Act No. 18/1997 Coll. (Atomic Act).
6.	Denmark	Act No. 332 of 19 June 1974, as amended by Act No. 732 of 7 December 1988, Act No. 363 of 18 May 1994 and Act No. 433 of 31 May 2000.
7.	Finland	1972 Nuclear Liability Act as amended.
8.	France	Law No. 68-943 of 30 October 1968 on Civil Liability in the Field of Nuclear Energy, modified by Law No. 90-488 of 16 June 1990.
9.	Germany	1959 Atomic Energy Act as amended [sections 13 and 14] and the 1977 Financial Security Ordinance.
10.	Greece	No existing legislation.
11.	Hungary	Nuclear Energy Act [Act CXVI] of 1996 and Governmental Decree No. 227 of 1997.
12.	Ireland	No existing legislation.
13.	Italy	Act No. 1860 of 31 December 1962 on the Peaceful Uses of Nuclear Energy and Act No. 131 of 5 March 1985 authorising ratification of the 1982 Protocols to Amend the Paris Convention and the Brussels Supplementary Convention.
14.	Korea	1969 Nuclear Damage Compensation Act as amended, Article 5 and implementing Presidential Decree.
15.	Lithuania	Law on Nuclear Energy of 14 November 1996, No. I-1613, Chapter XI, Article 61.
16.	Luxembourg	No existing legislation.
17.	Netherlands	Nuclear Third Party Liability Act of 17 March 1979, as amended.
18.	Norway	Atomic Energy Act of 12 May 1972 nr. 28, as amended, Chapter III.

19.	Romania	Law No. 703/2001 on Civil Liability for Nuclear Damage, as amended by Law No. 470/2004. Governmental Decision No. 894/2001 on Civil Liability for Nuclear Damage.
20.	Slovak Republic	Act No. 541/2004 coll. on the Peaceful Use of Nuclear Energy (Atomic Act) of 9 September 2004, part VII, Chapters 29-30.
21.	Slovenia	Act of 19 April 1978 on Liability for Nuclear Damage. Decree No. 443-02/2001-1 establishing the amount of the operator's liability and the corresponding amount of insurance for nuclear damage.
22.	Spain	Nuclear Energy Act, No. 25/1964 of 29 April 1964, as amended, Arts. 45 et seq.
23.	Sweden	Nuclear Liability Act of 8 March 1968 (No. 45), as amended.
24.	Switzerland	Act of 18 March 1983 on Nuclear Third Party Liability and Implementing Ordinance of 5 December 1983, as amended.
25.	Ukraine	1995 Law of Ukraine on Use of Nuclear Energy and Radiation Safety, as amended. 2001 Law on Civil Liability for Nuclear Damage and its Financial Security. Decree of 23 June 2003, No. 953, on Compulsory Insurance of Civil Liability for Nuclear Damage.
26.	United Kingdom	Nuclear Installations Act 1965, as amended, Section 19(1).
27.	United States	Atomic Energy Act of 1954, as amended, Sections 170a, b and c; 42 U.S. Code 2210(a), (b) and (c).

Annex 2

Required Operator Financial Security Amounts for Nuclear Installations and Transport Activities<sup>24</sup>

1.	Australia	No amount specified	
2.	Austria	Nuclear installations:  Research installations and transport activities:	EUR 406 million + EUR 40.6 million for interest and costs  EUR 40.6 million + EUR 4.6 million for interest and costs
3.	Belgium	Nuclear installations and transport activities:  Certain low risk facilities (e.g research installations):	EUR 297.4 million  EUR 74.3 million
4.	Canada	Nuclear installations and transport activities:	CAD 75 million (EUR 52.9 million)
5.	Czech Republic	Nuclear installations:  Transport Activities:	CZK 1.5 billion (min.) (EUR 51 million)  CZK 200 million (min.) (EUR 6.8 million)
6.	Denmark	Nuclear installations and transport activities:	SDR 60 million
7.	Finland	Nuclear installations and transport activities:	SDR 175 million
8.	France <sup>25</sup>	Nuclear installations:  Low risk nuclear installations and transport activities:	EUR 91.4 million  EUR 22.8 million

24. According to the EIC, the responses provided are not materially different from the observed practice of the nuclear insurance markets which it represents, although some differences were observed, particularly with respect to various sub-limits or additional limits for costs etc which have been omitted.

25. There are a number of additional financial security requirements in France. For the transport of nuclear substances, while in transit in France, the carrier must maintain financial security in the amount of EUR 22.8 million if the transport is covered by the Paris Convention and EUR 228.6 million if the transport is not covered by that Convention. In addition, for the international transport of nuclear substances not covered by the Paris Convention, the carrier must maintain financial security in an amount which must be specified in the certificate of financial security. Finally, for nuclear ships, the operator's liability amount is fixed at EUR 76.2 million and presumably it must maintain financial security in that same amount.

9.	Germany	Nuclear installations and transport activities:	EUR 2.500 million (max.)
10.	Greece	No amount specified	
11.	Hungary	Nuclear installations: Transport or storage of nuclear fuel:	SDR 100 million SDR 5 million
12.	Ireland	No amount specified	
13.	Italy	Nuclear installations and transport activities:	EUR 3.9 million
14.	Korea	Nuclear installations, nuclear material (depending upon its size, risk and nature):	KRW 10 million – 50 billion (EUR 8.400 – 4.2 million)
15.	Lithuania	No amount specified	
16.	Luxembourg	No amount specified	
17.	Netherlands	Nuclear power plants and storage facilities: Enrichment facilities and closed nuclear power plants: Research reactors and transport of irradiated nuclear fuel: Transport of all other substances:	EUR 340 million EUR 45 million EUR 22.5 million EUR 8-13.5 million
18.	Norway	Nuclear installations and transport activities: Exceptional cases, nuclear installations and transport activities:	SDR 60 million SDR 5 million (min.)
19.	Romania	Nuclear installations: Research reactors, radioactive waste repositories and spent nuclear fuel: Transport of spent nuclear fuel: Transport of nuclear materials:	SDR 300 million SDR 30 million SDR 25 million SDR 5 million
20.	Slovak Republic	Nuclear installations: transport activities/installation:	EUR 75 million EUR 50 million
21.	Slovenia	Nuclear installations: Research reactors: Transport activities:	SDR 150 million SDR 5 million SDR 20 million

22.	Spain	Nuclear installations: Low risk nuclear installations and transport activities:	EUR 150 million EUR 6 million
23.	Sweden	Nuclear installations: Installations for production, treatment, storage and transport or unirradiated uranium: Other transport activities:	SDR 300 million SDR 10 million SDR 10 million (min.)
24.	Switzerland	Nuclear installations and transport activities:  Transit across Switzerland:	CHF 1 billion (EUR 645.9 million) + 100 million (EUR 64.6 million) for interest and costs  CHF 50 million (EUR 32.3 million) + 5 million (EUR 3.23 million) for interest and costs
25.	Ukraine	Nuclear installations:	SDR 150 million
26.	United Kingdom	Nuclear installations and operator transport activities: Low risk facilities (e.g. research reactors):	GBP 140 million (EUR 204 million) GBP 10 million (EUR 14.6 million)
27.	United States	Commercial power reactors rated at or above 100 000 kW(e):  Commercial power reactors rated at less than 100 000 kW(e) and transport activities	USD 300 million (EUR 248.7 million) + the sum of a pool comprising a maximum of USD 95.8 million (EUR 81.7 million) per reactor, totalling approximately USD 10 billion + 5% surcharge if claims/legal costs exceed this amount  Amounts determined by the US/NRC + government guarantee for excess damage up to USD 500 million (EUR 415 million)

# CASE LAW

## France

### *Judgement of the Court of Appeal of Limoges Concerning the Dumping of Radioactive Waste by Areva NC (2006)*

On 28 June 2006, the Court of Appeal of Limoges confirmed the judgement of the Magistrates' Court of 14 October 2005 which had discharged Areva NC (formerly Cogema) with regard to the claims of two associations, *Sources et Rivières du Limousin* (Springs and Rivers of Limousin) and the federation *France Nature Environnement* concerning the dumping of radioactive waste and damage to fish fauna (see *Nuclear Law Bulletin* No. 76).

The association Springs and Rivers of Limousin had instituted proceedings in 1999 against Cogema for pollution of various lakes and rivers in Haute-Vienne and the endangering of peoples' lives. The federation *France Nature Environnement* became another civil party to this action in 2002. The examining judge considered that the cause of action involving the endangering of peoples' lives was not applicable but he ordered that the case be returned to the Magistrates' Court to be judged in respect of the offences concerning the dumping of waste containing radioactive substances and water pollution causing damage to fish fauna.

The Court of Appeal of Limoges ruled that Areva NC was not guilty of dumping radioactive waste, and neither had it infringed radiation protection regulations or general mining industry regulations. There was no proof of damage to fish fauna.

## Sweden

### *Judgement on Plans for the Dismantling of Barsebäck (2006)*

On 12 July 2006, a Swedish environmental court in Kaevlinge approved plans for decommissioning the two 600 MW Boiling Water Reactors located at Barsebäck, endorsing a decision to delay dismantling until at least 2020.

The first reactor at Barsebäck was shut down in November 1999 through a political decision by the Government following a period of negotiations between the State, owner Sydkraft and national energy company Vattenfall. The decision was made pursuant to the 1997 Act on the Phasing-out of Nuclear Power (see *Nuclear Law Bulletin* No. 61). Barsebäck-2 was shut down on 31 May 2005, again pursuant to the 1997 Act (see *Nuclear Law Bulletin* No. 75).

This court case resulted from a dispute between the operator and the Swedish Government's Swedish Radiation Protection Institute. The Swedish Government wanted decommissioning to commence immediately whereas plant management at Barsebäck had indicated its intention to wait until 2020, when the radiation dose to workers during decommissioning work would be lower. The

court approved the plans to commence dismantling in 2020, when a repository for large reactor components will be ready at the national final repository for radioactive waste at the Forsmark plant.

## **United Kingdom**

### ***Judgement of Carlisle Crown Court Concerning a Leak at Sellafield (2006)***

On 16 October 2006, British Nuclear Group Sellafield Ltd. (BNGSL) was fined 500 000 pounds (GBP) plus GBP 68 000 in costs in a case brought by the UK Health and Safety Executive (HSE) for failing to identify and stop an eight-month long leak of 83 400 litres of radioactive liquid at the Thermal Oxide Reprocessing Plant (THORP) at Sellafield in Cumbria.

The prosecution followed a detailed investigation by HSE's Nuclear Installations Inspectorate into the leak which was notified to HSE on 20 April 2005.

The fine was levied at Carlisle Crown Court after BNGSL pleaded guilty, at an earlier hearing, to three counts of breaching conditions attached to the Sellafield site licence, granted under the 1965 Nuclear Installations Act as amended. These conditions require the licensee to make and comply with written instructions; to ensure safety systems are in good working order; and to ensure radioactive material is contained and, if leaks occur, they are detected and reported.

## **United States**

### ***Judgement of the US Court of Appeals Regarding Disposal of Spent Nuclear Fuel (2006)\****

In accordance with the Nuclear Waste Policy Act of 1982, as amended (NWPAA) (see *Nuclear Law Bulletin* Nos. 31, 41 and 63), the US Department of Energy (DOE) entered into contracts with more than 45 utilities under which, in return for the payment of fees into the Nuclear Waste Fund, DOE agreed to commence disposal of spent nuclear fuel by 31 January 1998. Because DOE has no facility available to receive such fuel under the NWPAA, DOE has been unable to commence disposal. Significant litigation claiming damages for partial breach of contract has ensued (see *Nuclear Law Bulletin* Nos. 58-64, 73). To date, while some cases have been settled, about 57 cases are pending in the Court of Federal Claims. In some of those cases, orders have already been entered establishing the government's liability and the only outstanding issue to be litigated is ascertaining the amount of damages to be awarded. The industry reportedly estimates that damages for all utilities with which DOE has contracts ultimately will be about 50 billion US dollars (USD). DOE considers this estimate to be highly inflated.

On 29 September 2006, the US Court of Appeals decided in one of the spent nuclear fuel cases, *PSEG Nuclear v. United States*,<sup>1</sup> that because no provision of the NWPAA provides jurisdiction over PSEG's contract claims in another Court, and because the utility breach of contract claims require resolution of factual issues rather than inquiry limited to an administrative record, the Court of Federal

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\* This case note was kindly provided by Ms. Sophia Angelini, Attorney adviser at the Office of the General Counsel of the US Department of Energy. The author alone is responsible for the facts mentioned and opinions expressed herein.

1. Public Service Enterprise Group (PSEG) Nuclear LLC and Public Service Electric and Gas Company v. United States.

Claims has jurisdiction to hear PSEG's breach claims under the Tucker Act which generally vests that Court with jurisdiction to render judgement in government contract disputes. The Court concluded that the NWPA did not strip the Court of Federal Claims of its Tucker Act jurisdiction over PSEG's claims.

The breach of contract claims in this case stem from contracts entered into between PSEG and DOE under Section 302 of the NWPA. The Court stated that the contract term at issue, the 31 January 1998 date for commencing spent nuclear fuel collection, was clearly statutorily mandated. However, for the Court, the key question was not whether the breached contract provision was statutorily mandated but whether the claims at issue involve the DOE's authority under the statutory mandate. As both parties noted, Section 302 of the NWPA required only that DOE include certain obligations in its contracts. Therefore, judicial review as to whether DOE properly incorporated these obligations within its contracts may fall within the jurisdiction conferred on the Courts of Appeal under Section 119 of the NWPA. However, the performance of and any damages for failure to meet those obligations were not provided by statute. The contract claims only involve issues of whether DOE breached its contractual obligations, and if so, to what damages, if any, PSEG is entitled for the breach. Because these are not within DOE's statutory obligations under the NWPA, the Court found that the decision in *City of Burbank v. Bonneville Power Administration*<sup>2</sup> did not compel a conclusion that Section 119 of the NWPA strips the Claims Court of its Tucker Act jurisdiction over PSEG's claim merely because the claim involves a statutory mandated provision.

## **European Union**

### ***Judgement of the European Court of Justice on Uranium Enrichment (2006)***

On 12 September 2006, the European Court of Justice handed down its ruling<sup>3</sup> in the joined cases *Industrias Nucleares do Brasil SA* and *Siemens AG versus UBS AG* [C-123/04] and *Texas Utilities Electric Corporation* [C-124/04]. This ruling originates in two requests for a preliminary ruling under Article 150 Euratom from the *Oberlandesgericht* Oldenburg in Germany. The German court had asked a number of questions concerning the interpretation of the provisions of the Euratom Treaty on supply, and in particular concerning the enrichment of uranium on the territory of the Community by a national of a non-member State.

Among other statements, the Court ruled that the first paragraph of Article 75 of the Euratom Treaty is to be interpreted as meaning that the terms "processing", "conversion" and "shaping" in that provision also encompass uranium enrichment.

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2. 273 F. 3d. 1370 (Fed. Circ. 2001).

3. The text of the ruling is available on the website of the European Court of Justice at [www.curia.europa.eu/](http://www.curia.europa.eu/).



# NATIONAL LEGISLATIVE AND REGULATORY ACTIVITIES

## Belgium

### *Organisation and structure*

#### *Amendment to the Royal Order on the Scientific Board for Ionising Radiation (2006)*

This Royal Order of 1 May 2006 amends the Royal Order of 18 December 2002 setting out the composition and powers of the Scientific Board for Ionising Radiation established alongside the Federal Agency for Nuclear Control (see *Nuclear Law Bulletin* No. 71). It provides that 16 Members of the Board will be nominated by the competent Minister (holding authority over the Federal Agency for Nuclear Control) and 2 each will be nominated by the Flemish Government, the Wallon Government and the Government of the Region of Brussels-Capital. It sets out further requirements in relation to the qualifications and linguistic capabilities of all members of the Board, and provides details on the terms and conditions of their nomination.

### *Radiation protection*

#### *Amendment to the Royal Order on Radiation Protection (2006)*

This Royal Order of 24 January 2006 was adopted in implementation of the 1994 Act on Protection of the Public, Workers and the Environment against the Dangers of Ionising Radiation and Relating to the Federal Agency for Nuclear Control (see *Nuclear Law Bulletin* Nos. 53, 54 and 59).

It amends the Royal Order of 20 July 2001 establishing General Regulations for the Protection of the Public, Workers and the Environment against the Dangers of Ionising Radiation (see *Nuclear Law Bulletin* No. 69) by setting out specific provisions with regard to the elimination of lightning rods containing radioactive materials.

#### *Amendment to the Royal Order Establishing General Regulations for the Protection of the Public, Workers and the Environment Against the Dangers of Ionising Radiation (2006)*

This Royal Order of 23 May 2006 amends the Royal Order of 20 July 2001 (see *Nuclear Law Bulletin* No. 69). It implements Council Directive 2003/122/Euratom of 22 December 2003 on the Control of High-activity Sealed Radioactive Sources and Orphan Sources (see *Nuclear Law Bulletin* Nos. 72 and 73). It contains in particular more specific information on the definitions of “sealed source”, “high-activity source which is no longer used” and “orphan source”.

#### *Directives on the Use of Walk-through Radioactivity Detectors in the Non-nuclear Sector (2006)*

These directives were adopted by the Federal Agency for Nuclear Control and published on 4 September 2006. They are designed to apply to anyone using walk-through radioactivity detectors in their establishments and, if necessary, to experts who may be required to carry out maintenance. They establish threshold levels and describe the procedure to be followed by the person operating this device when the alarm sounds. They further describe radiation protection measures to be taken by personnel in the case of intervention and information that the operator of such detectors should provide to the Federal Agency for Nuclear Control.

#### *Directives on the Use of X-rays for Medical Purposes – Dosimetry of Patients (2006)*

These directives, adopted by the Federal Agency for Nuclear Control on 12 October 2006, set out specific criteria with regard to the use of X-rays for medical purposes, in particular in relation to the dosimetry of patients. They establish measures regarding the frequency of dose verifications for patients and the evaluation of individual doses.

#### ***Transport of radioactive materials***

##### *Order on the Appointment of Safety Advisors for the Transport of Dangerous Goods (2006)*

This Royal Order of 5 July 2006 implements Council Directive 96/35/EC of 3 June 1996 on the Appointment and Vocational Qualification of Safety Advisors for the Transport of Dangerous Goods by Road, Rail and Inland Waterway, and Directive 2000/18/EC of the European Parliament and of the Council of 17 April 2000 on Minimum Examination Requirements for Safety Advisors for the Transport of Dangerous Goods by Road, Rail or Inland Waterway, into Belgian law. In line with Article 1 of Directive 96/35/EC, it provides that undertakings the activities of which include the transport, or the related loading or unloading, of dangerous goods by road, rail or inland waterway each appoint one or more safety advisors for the transport of dangerous goods, responsible for helping to prevent the risks inherent in such activities with regard to persons, property and the environment. It sets out further details with regard to the qualifications and examinations necessary to exercise these activities.

## **Brazil**

### ***General legislation***

#### *Decree Implementing the Co-operation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (2006)*

On 5 September 2006, Decree No. 5885 implementing the Co-operation Agreement for the Promotion of Nuclear Science and Technology in Latin America and the Caribbean (ARCAL) was adopted. ARCAL was originally adopted under the aegis of the International Atomic Energy Agency (IAEA), in Vienna, on 25 September 1998. Brazil deposited its instrument of ratification on 27 March 2006.

States Parties to this agreement, under the auspices of the IAEA, undertake to promote, foster, co-ordinate and implement co-operation activities for training, research, development and applications

of nuclear science and technology in the Latin America and the Caribbean region through their competent national institutions. Activities are carried out under the primary supervision of the ARCAL Board of Representatives, with the assistance of a Technical Co-ordination Board.

The ARCAL Agreement entered into force on 5 September 2005 following the deposit of the instruments of ratification of ten IAEA Member States. It shall remain in force for ten years and may be extended by periods of five years if the Member States so agree.

## Canada

### *Regime of radioactive materials (including physical protection)*

#### *Regulations Amending the Nuclear Security Regulations (2006)\**

##### *Background*

The Nuclear Safety and Control Act<sup>1</sup> (hereinafter referred to as “the NSCA”; the text of this instrument was reproduced in the Supplement to *Nuclear Law Bulletin* No. 60), is the framework legislation that governs the safe and peaceful use of nuclear energy and nuclear substances in Canada. It requires those carrying out nuclear related activities to be licensed in order to protect health, safety and the environment, to prevent unreasonable risk to national security and to respect Canada’s international obligations.<sup>2</sup>

The NSCA establishes the Canadian Nuclear Safety Commission (CNSC) as the regulatory Agency responsible for the implementation of the requirements set out in the NSCA and associated regulations. The areas subject to regulatory oversight include nuclear power reactors, non-power reactors, nuclear research and test facilities, uranium mines and mills, uranium refineries, nuclear substance processing facilities, irradiators, medical and non-medical accelerators, and a wide variety of nuclear substances and prescribed equipment.

At the time the NSCA came into force on 31 May 2000, specific regulations were made in which the more detailed requirements applicable to the Canadian nuclear industry were outlined. Included in this set of regulations were the Nuclear Security Regulations (hereinafter referred to as “the 2000 NSR”).<sup>3</sup> They set out the baseline requirements applicable to Category I, II and III material and nuclear reactors that could exceed 10 MW thermal power during normal operation.

As a result of the heightened threat posed to Canadian nuclear facilities following the terrorist events of 11 September 2001, the CNSC issued two orders<sup>4</sup> that required affected licensees to

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\* This Information Note was kindly submitted by Samantha Maislin Dickson, Counsel with the Department of Justice Canada. The author alone is responsible for the facts mentioned and opinions expressed herein.

1. S.C. 1997, c. 9, which came into force on 31 May 2000.

2. S. 3 (Purpose) and 9 (Object) of the NSCA.

3. SOR/2000-209.

4. The first order, CNSC Order Number 01-1, was issued by a full panel of the tribunal component of the CNSC (the Commission), to facilities considered high-risk (e.g. nuclear power plants and nuclear research and test establishments) under its powers to issue emergency orders pursuant to s. 47 of the NSCA. The second order, Designated Officer Order Number 01-D1, was issued by a Designated Officer, a person authorized by the Commission to exercise certain decision-making functions under the NSCA, in

implement specific physical protection measures considered necessary to strengthen security at their facilities. Subsequent to these orders being issued, the CNSC undertook a thorough review of the 2000 NSR, taking into consideration the findings of earlier studies on the security of nuclear facilities in Canada<sup>5</sup> and the increased threat of terrorist action against high-profile nuclear facilities.

#### *Amendment to 2000 NSR*

Following extensive public consultation, in particular with affected licensees, the Regulations Amending the Nuclear Security Regulations were made by the CNSC on 16 August 2006. They were approved by the Governor in Council on 29 August 2006, and published in a special edition of the *Canada Gazette*, Part II (Official Regulations) on 7 September 2006.<sup>6</sup> The amended regulations (“the 2006 NSR”) will come into force on 27 November 2006 as a three month transition period was included in order to provide affected licensees time to comply with the new requirements.<sup>7</sup>

The 2006 NSR decisively strengthen the regulatory regime for the physical protection of nuclear facilities, nuclear material and nuclear substances in Canada, by taking into account the results of the regulatory reviews and incorporating the requirements of the orders that had been issued following the events of 9/11. Like the 2000 NSR, the 2006 NSR categorise nuclear materials according to potential risk of their use in a nuclear explosive device, with Category I nuclear material being the highest risk and Category III nuclear material being the lowest.

The amended regulations are divided into two parts, with Part 1 applying to high security sites<sup>8</sup> and facilities containing Category III material and Part 2 applying to lower risk facilities regulated by the CNSC.<sup>9</sup> The additional physical protection requirements contained in the 2006 NSR touch on all aspects of the physical protection of nuclear material and nuclear substances, and include:

For licensees subject to Part 1:<sup>10</sup>

- **On-site nuclear response force** – Licensees must establish an armed response force available at all times and capable of making an immediate and effective intervention to counter threats to nuclear facilities and nuclear material.
- **Design basis threat analysis** – Licensees must incorporate the national design basis threat, established by the CNSC, in the design of their physical protection system to

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accordance with his power to issue orders under s. 35 and para. 37(2)(f) of the NSCA. This second order applied to a group of facilities having a lower risk profile (e.g. nuclear substance processing facilities, uranium refineries and nuclear fuel fabrication facilities).

5. These studies examined the recommendations of the IAEA contained in the International Atomic Energy Agency’s *Physical Protection of Nuclear Material and Nuclear Facilities* INFCIRC/225/Rev.4 (Corrected).
6. SOR/2006-191.
7. S. 43 of the 2006 NSR.
8. Essentially those facilities captured by the CNSC Order Number 01-1, *supra*, note 4.
9. Those facilities captured by Designated Officer Number 01-D1, *supra*, note 4.
10. Licensees possessing, using or storing Category III material are subject only to certain requirements found in Part 1 of the 2006 NSR, the bulk of these requirements applying to “high security sites”, the facilities that were captured by Commission Order CNSC Number 01-1.

protect against the unauthorised removal of nuclear material and sabotage of nuclear facilities and nuclear material.

- **Threat and risk assessment** – Licensees must carry out a threat and risk assessment to identify local threats to their facility and take any credible threats into account in the design of their physical protection system.
- **Identification and protection of vital areas** – Licensees must identify and apply physical protection measures to areas which contain equipment, systems or devices, or nuclear substances where sabotage could directly or indirectly lead to unacceptable radiological consequences.
- **Uninterrupted power supply** – Licensees must have an uninterrupted power supply (i.e. back-up battery power) to maintain the operation of alarm systems, alarm assessment systems and the various essential monitoring functions of the security monitoring room.
- **Certificates for medical fitness, physical fitness and psychological fitness** – Licensees must obtain three separate certificates confirming that persons employed as nuclear security officers are medically, physically and psychologically fit to carry out their duties.
- **Contingency planning, drills and exercises** – Licensees must test physical protection systems through regular drills, and develop and exercise contingency plans to manage anticipated security related emergencies.
- **Responsibility for granting authorisations** – Licensees are now responsible for granting certain access authorisations (this responsibility was transferred from the CNSC, recognizing that the licensees are responsible for nuclear security).

Requirements applicable to licensees subject to Part 1 and Part 2:

- **Access control** – Licensees must have procedures and devices in place to positively identify and screen persons entering a nuclear facility.
- **Supervisor awareness programme** – Licensees must train supervisors to recognise behavioural changes in facility personnel, including contractors, which may indicate an increase in risk to the security of the facility.
- **Predetermination of trustworthiness** – Employees and other persons with unescorted access to the licensee’s facility must obtain a security clearance or an authorisation appropriate to their level of access.

In addition to the 2006 NSR, the CNSC continues to regulate some aspects of the physical protection of nuclear material and nuclear substances by way of its licensing authority.<sup>11</sup> In contrast to regulations, licence conditions that are contained in licences not publicly available are a more appropriate regulatory mechanism to address security sensitive requirements<sup>12</sup> as well as those that are facility specific.

As part of its compliance and enforcement programme established under the NSCA, the CNSC monitors compliance with its regulatory regime, including the 2006 NSR. CNSC inspectors and staff

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11. S. 24 and ss. 37(2) of the NSCA.

12. Pursuant to para. 21(1)(c) of the General Nuclear Safety and Control Regulations [SOR/2000-202], the security arrangements, security equipment, security systems and security procedures established by a licensee are considered “prescribed information” and can only be made public in certain circumstances.

of the Nuclear Security Division verify compliance with the 2006 NSR and the effectiveness of licensees' physical protection programmes. There are a variety of regulatory tools available to the CNSC, including written notices, increased regulatory scrutiny, licensing actions<sup>13</sup> and the issuance of orders.<sup>14</sup>

Finally, the NSCA creates offences for non compliance with regulatory requirements such as failure to comply with a licence condition, the NSCA or any regulation made pursuant to the NSCA.<sup>15</sup> The penalties associated with these offences include fines not exceeding 1 million of CAN dollars (CAD) or a prison term not exceeding five years, or both, if the matter is prosecuted by way of indictment.<sup>16</sup> If the Crown elects to prosecute by way of summary conviction, the offence is punishable by a fine not exceeding CAD 500 000 or imprisonment for a term not exceeding 18 months, or both.<sup>17</sup>

## France

### *Radiation protection*

#### *Decree Establishing Criteria Governing the Nomination, Clearance and Swearing in of Radiation Protection Inspectors (2006)*

Decree No. 2006-694, adopted on 13 June 2006, sets out criteria governing the nomination of radiation protection inspectors pursuant to Articles L.1333-17 (civil installations) and L.1333-18 (installations classified for defense purposes) of the Public Health Code.

Radiation protection inspectors are nominated upon proposal of the Director General for Nuclear Safety and Radiation Protection, by Joint Order of the Ministers responsible for Health and for Labour. The order nominating an inspector specifies, *inter alia*, the fields in which (s)he may carry out activities: industrial applications of ionising radiation, medical applications of ionising radiation, or other applications.

Radiation protection inspectors mentioned at Article L.1333-18 are nominated as follows:

- by Order of the Minister for Defense or the Minister responsible for Industry, upon a proposal of the Delegate for nuclear safety and radiation protection for defense-classified activities and installations, for activities and installations falling within their respective field of authority, to which Decree No. 2001-293 of 5 July 2001 on the Safety and Radiation Protection of Defense-related Nuclear Installations and Activities applies;
- by Order of the Minister of Defense for the inspection of other defense-related installations, to which Article L.611-2 of the Labour Code applies.

Proposals for nomination are submitted to the Director General of Nuclear Safety and Radiation Protection for comment. In order to nominate someone as a radiation protection inspector, the

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13. *Ibid.*

14. S. 35, para. 37(2)(f), ss. 46(3) and s. 47 of the NSCA.

15. S. 48 of the NSCA.

16. Para. 51(3)(a) of the NSCA.

17. Para. 51(3)(b) of the NSCA.

authorities take into account that person's level of training, professional experience and legal and technical knowledge in the radiation protection field, in light of the qualifications necessary to fulfill the inspection role.

*Order on Dosimetric Information to Be Contained in Written Reports of Medical Acts Involving Ionising Radiation (2006)*

This Order of 22 September 2006 provides that any medical acts which involve the application of ionising radiation must be the subject of a written report established by the practitioner who administered the act and must contain the following information:

- the identification of the patient and the administering practitioner;
- the date upon which the act was administered;
- the facts justifying the administration of this act and the procedure followed, in light of the guides on prescriptions and on procedures mentioned in Articles R.1333-69 and R.1333-70 respectively of the Public Health Code;
- information identifying the material used in the case of the most irradiating techniques: interventional radiology, CT scans and radiotherapy;
- information useful to estimate the dose received by the patient during the procedure.

With regard to acts of nuclear medicine, including in internal vectorised radiotherapy, the written report shall contain the name of the radiopharmaceutical(s) administered, specifying the radionuclide used, the activity administered and the mode of administration.

## **Latvia**

### ***Radiation protection***

*Regulations on Radiometric Control of Goods and Vehicles on the State Border (2005)*

These Cabinet Regulations (No. 233) were adopted on 5 April 2005 in implementation of Council Directive 2003/122/Euratom of 22 December 2003 on the Control of High-activity Sealed Radioactive Sources and Orphan Sources (see *Nuclear Law Bulletin* Nos. 72 and 73). They provide in particular for supplementary training and retraining for the staff of different state institutions who are involved in relevant activities where orphan sources are most likely to be found – at significant transit points e.g. customs posts and border crossing points.

*Amendment of the 2001 Regulations on the Procedure for the Issue of a Special Permit (Licence) (2006)*

These Cabinet Regulations (No. 301) on the Procedure for the Issue of a Special Permit (Licence) or Permit for Activities Involving Ionising Radiation Sources and the Procedure for Public Dispute on the Establishment of Ionising Radiation Facilities of State Significance or on Essential Modifications thereto, adopted on 3 July 2001 (see *Nuclear Law Bulletin* No. 70) have recently been amended. The first amendment extends to five years the period of validity for licences in respect of low-risk practices such as dental X-ray, provided that during the previous licence there were no

violations of requirements. The second amendment was adopted in implementation of the Council Directive 2003/122/Euratom of 22 December 2003 on the Control of High-activity Sealed Radioactive Sources and Orphan Sources (see *Nuclear Law Bulletin* Nos. 72 and 73). It concerns in particular requirements for owners and potential owners to provide the competent authority with detailed plans on proposed activities involving spent sealed sources.

*Amendment of the 2001 Regulations on the Procedure for Packaging and Marking of Ionising Radiation Sources (2006)*

These Cabinet Regulations (No. 406), adopted on 18 September 2001 (see *Nuclear Law Bulletin* No. 70), were recently amended in implementation of the Council Directive 2003/122/Euratom of 22 December 2003 on the Control of High-activity Sealed Radioactive Sources and Ophan Sources. Specific requirements include the marking of high-activity sources by engraving or stamping.

*Amendment of the 2001 Regulations on Activities Involving Ionising Radiation Sources Which Do not Require a Special Permit (Licence) or Permit (2006)*

These Cabinet Regulations (No. 288), adopted on 3 July 2001, were recently amended in implementation of Council Directive 96/29/Euratom of 13 May 1996 Laying Down Basic Safety Standards for the Protection of the Health of Workers and the General Public Against the Dangers Arising From Ionising Radiation (see *Nuclear Law Bulletin* Nos. 52, 58 and 61).

## **Republic of Moldova**

### ***Radiation protection***

*Law on the Safe Deployment of Nuclear and Radiological Activities (2006)\**

Law No. 111-XVI on the Safe Deployment of Nuclear and Radiological Activities was adopted on 11 May 2006 and entered into force on 30 September 2006. It repeals the 1997 Law on Radiation Protection and Safety. The main purpose of this new legislation is to improve the regulatory framework in the field of radiation protection and to establish a regulatory authority in the Republic of Moldova. The law contains 42 Articles divided into 8 Chapters.

Chapter I “General Provisions” contains requirements governing the safe deployment of nuclear and radiological activities and establishes that those activities must be performed exclusively for peaceful purposes, in line with the obligations contained in the international treaties to which the Republic of Moldova is Party.

The scope of the law is defined as follows:

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\* This Information Note was kindly provided by Ms. Maria Corfanenco, Head of the Division of Personnel, Legal and Foreign Affairs at the Department of Standardization and Metrology of the Republic of Moldova. Ms. Corfanenco took part in the 2005 Session of the International School of Nuclear Law at the University of Montpellier 1. Facts given and opinions expressed in this Note are the responsibility of the author alone.



- non-proliferation of nuclear weapons, of materials and equipment relevant for the proliferation of nuclear weapons and of other nuclear explosive devices;
- establishment of mechanisms to ensure the safety of nuclear and radiological activities;
- preventing the unauthorised deployment of nuclear and radiological activities, in compliance with the Republic of Moldova's obligations under the Treaty on Non-proliferation of Nuclear Weapons and other international treaties to which it is Party;
- protection of workers, the public, property and the environment against the harmful effects of ionising radiation, in compliance with international requirements in the field of radiation protection and nuclear safety.

Chapter II “National Agency” provides for the establishment of the national nuclear regulatory authority. The National Agency is a central public authority, attached to the Ministry of Ecology and Natural Resources. It has legal personality and holds the necessary level of independence and competence to perform regulatory functions in the field of nuclear and radiological activities [Art. 10]. The structure and statute of the National Agency are approved by the Government, and financial resources necessary for its activities are provided from the state budget, as well as from grants, technical assistance and international co-operation projects. The Head of the National Agency is also the State Chief Inspector in the field of nuclear and radiological activities and is appointed by the Government.

The principal functions of the National Agency are as follows:

- drafting laws in the field of nuclear and radiological activities;
- ensuring compliance with legislation in force and with the international treaties to which the Republic of Moldova is Party;
- ensuring the necessary regulatory framework establishing general requirements governing the safety of nuclear and radiological activities; radiation protection; quality control system; control on non-proliferation of nuclear weapons; physical protection and security of radiation sources, intervention and research in the event of radiological (nuclear) accidents;
- establishing requirements for licensing, supervision and control;
- reviewing and assessing licensing applications;
- maintaining the national register of radioactive sources, and the national register of natural and legal persons licensed to carry out activities in the field of nuclear and radiological activities;
- collaboration with the regulatory authorities of other countries and with international organisations competent in the field;
- accreditation of experts in the field of nuclear and radiological activities.

Pursuant to Article 12, the National Agency is entitled to unlimited access to sites where nuclear and radiological activities are carried out and to all information, technical and contractual data, in any form, necessary to carry out controls.

Chapter III “Competence of the Other Authorities Involved in the Regulatory Process” specifies the respective roles and responsibilities of other authorities in the fields of medicine, emergency situations, environmental protection, agriculture, customs, standardisation and metrology.

Chapter IV “Licensing of Nuclear and Radiological Activities” states that authorisation is issued in the form of a licence or registration, depending on the categorisation of sources in accordance with International Atomic Energy Agency recommendations. Licences for Category I-III sources are issued by the Licensing Chamber. Registration is sufficient for Categories IV-V and is performed by the National Agency. This Chapter also sets out dose limits and criteria for exemptions from the authorisation and control procedure and establishes conditions governing the licensing of the import and export of radiation sources.

Chapter V “Obligations and Rights of the Public and of Licensees” sets out various provisions on the obligations of the public (to observe the legislation and regulations in force, take the necessary precautionary measures established by radiation protection standards etc.) and their corresponding rights (to safe working conditions, transparent information on the radiological situation, and compensation in the event of an accident etc.). Similarly, it sets out the rights and obligations of licensees. Licensees are required to ensure:

- nuclear and radiological safety, radiation protection, physical protection, intervention in the event of a radiological (nuclear) accident, maintenance of a quality control system for the activities performed;
- registration of radioactive and nuclear materials, and of ionising radiation sources;
- compliance with licence conditions; submission of information to the National Agency regarding any exceeding of dose limits established by the regulations in force;
- establishment of internal regulations, roles and instructions in order to ensure the safe deployment of its activities;
- where an activity generates waste, safe management of that waste and financing of its collection, manipulation, transportation, treatment, conditioning and storage.

Chapter VI “State Control and Supervision of Nuclear and Radiological Activities” provides that state control and supervision is performed in relation to the issuing of a licence; during the validity of that licence, periodically or incidentally; on the basis of a notification and/or at the request of licensees; and when information comes to light that radiological and nuclear activities are being performed without a licence.

Chapter VII “Responsibility for violation of legislation in the field of nuclear and radiological activities” sets out general provisions with regard to liability for violations. Information on specific offences is set out in other legislation. Article 38 provides that the licensee is entirely responsible for nuclear damage caused, in accordance with the national legislation and with the 1963 Vienna Convention on Civil Liability for Nuclear Damage, to which the Republic of Moldova is a Party.

Chapter VIII “Final Clauses” provides that licences, authorisations and permits issued before the entry into force of this law shall remain valid for the period for which they were issued, provided that they are registered by the National Agency within 30 days after entry into force of this legislation. It further provides that the Government will submit proposals to the Parliament to harmonise the legislation in force and its own normative acts with this new law and will create the National Agency.

## **Morocco**

### ***Third party liability***

#### *Decree Granting a State Guarantee to CNESTEN (2006)*

In June 2006, the research reactor TRIGA MARK II, with a capacity of 2 MW, located at the Nuclear Research Centre on the Maâmora site (*Centre d'études nucléaires de la Maâmora – CENM*), was commissioned. This installation is designed to produce radioisotopes for medical and industrial uses, to analyse the irradiation of mining, biological and material samples, and to carry out scientific research.

Pursuant to the Protocol to Amend the Vienna Convention on Civil Liability for Nuclear Damage, ratified by Morocco on 6 July 1997 and which entered into force on 4 October 2003, the National Centre of Nuclear Energy, Science and Techniques (*Centre national de l'énergie, des sciences et des techniques nucléaires – CNESTEN*), as operator of a nuclear installation, is required to have insurance or other financial security.

This obligation is established in a Decree of the Prime Minister of 26 February 1999 on the Construction Licence for the CENM and is implemented by Act No. 12-02 on Civil Liability for Nuclear Damage, promulgated on 7 January 2005 (the text of the Act is reproduced in *Nuclear Law Bulletin* No. 75).

In order to enable CNESTEN to meet its insurance obligation, the Moroccan State has provided a financial guarantee. The State is indeed entitled to provide a guarantee to cover the third party liability of an operator when it cannot meet its obligations, totally or partially, pursuant to Article 24 of the Act on Civil Liability for Nuclear Damage.

Article 22 of this law provides that, having regard to the nature of the nuclear installation, the administrative authorities may fix the operator's liability at an amount lower than the basic amount [100 million Special Drawing Rights (SDR)]. Therefore, as regards the CENM installation, the amount is fixed at SDR 5 million.

This State guarantee is granted to CNESTEN pursuant to a Decree of 1 February 2006 (No. 2-06-84).

## **Norway**

### ***Radiation protection (including nuclear emergency planning)***

#### *Amendments to the Act on Radiation Protection and Use of Radiation (2005)*

Potential nuclear and radiological threat scenarios have changed considerably during the last decade. They now include not only nuclear or radiological accidents or incidents but also other threats resulting from malevolent acts such as sabotage of nuclear facilities, the use of "dirty bombs" or dispersal of radioactive sources in populated areas.

In order to clarify that the provisions of the 2000 Act on Radiation Protection and Use of Radiation (see *Nuclear Law Bulletin* No. 67; the text of the Act is reproduced in the Supplement to *NLB* No. 68) include all these threat scenarios, the term "nuclear accident" in Section 16 of the Act has

been replaced by “nuclear accident and other events which may involve ionising radiation or dispersion of radioactivity”. Consequently, the term “emergency preparedness against nuclear accidents” in Sections 15 and 16 has been replaced by “nuclear and radiological emergency preparedness.”

Furthermore, the Radiation Protection Act now clearly states (in Section 16) that the purpose of nuclear and radiological emergency preparedness is to protect life, health, the environment or other important social interests.

## **Romania**

### ***Regime of nuclear installations***

#### *Decision on Procedures for Environmental Impact Assessment (2006)*

Government Decision No. 1213 of 6 September 2006 was published in the Official Gazette of Romania (Part I, No. 802) of 25 September 2006. This Decision establishes a standard procedure for the assessment of the environmental impact of certain public and private projects that may have a significant impact on the environment. This assessment is an integral part of the licensing procedure. The competent authorities to enforce the provisions of this Decision are, as appropriate, the central environmental authority – the National Agency for Environmental Protection – or the regional and local agencies for environmental protection. Projects that due to their nature, magnitude or position, amongst other factors, may have a significant impact on environment, are required to have their environmental impact assessed prior to the issuance of an environmental approval.

A list of projects that have undergone an environmental impact assessment is set out in Annex 1 to the decision. They include nuclear power plants and other nuclear installations, including their decommissioning and dismantling, (excluding, however, research installations dedicated to the production and conversion of fissionable and radioactive materials whose maximum capacity does not exceed 1 kW of continuous thermal power); installations for the reprocessing of spent nuclear fuel, the production or enrichment of nuclear fuel, the processing of spent nuclear fuel or highly radioactive waste, the final storage of spent nuclear fuel or radioactive waste, the storage of spent nuclear fuel or radioactive waste at a location different from the production facility for a time-period that exceeds 10 years. Annex 2 to the decision sets out a list of the projects for which the eligibility for environmental impact assessment remains to be determined. Among such projects are installations for the processing and storage of radioactive waste, other than those listed in Annex 1.

### ***Radioactive waste management***

#### *Amendment of the Ordinance on the Management of Spent Nuclear Fuel and Radioactive Waste (2006)*

Ordinance No. 31 of 19 July 2006 amending Ordinance No. 11/2003 on Radioactive Waste and Spent Fuel Management (see *Nuclear Law Bulletin* Nos. 71 and 72) was published in the Official Gazette of Romania (Part I, No. 663) of 2 August 2006. The main amendments to the ordinance are as follows:

- The title of the ordinance has been modified to “Ordinance on the Safe Management of Radioactive Waste”.

- In accordance with the new wording of Article 1, the management of radioactive waste is to comply with national norms and regulations as well as with international agreements and conventions to which Romania is a Party, with regard to nuclear safety and protection against ionising radiation for the public, workers, the environment and property.
- The objective of this ordinance is now to set out the responsibilities of the various bodies involved in radioactive waste management and to allocate the financial resources necessary for decommissioning and radioactive waste management during the life-time of nuclear and radiological installations, in order to ensure nuclear and radiological safety for the public, workers, the environment and property, without jeopardising the needs and expectations of future generations.
- The scope of the ordinance has been amended. It now applies to the safe management of both radioactive waste resulting from the nuclear fuel cycle and radioactive waste resulting from nuclear applications and technologies in industry, medicine, agriculture and other fields of social-economical interest, including waste resulting from decommissioning.
- The principles underlying the management of radioactive waste, including final storage, are a) to use only processes and methods of management that guarantee an acceptable level of protection against ionising radiation for human health and the environment, including possible transboundary effects; b) the polluter pays principle; c) the liability of the party generating the radioactive waste; d) the use of the most effective methods available that do not involve excessive costs for future generations; e) to maintain the lowest possible level of activity and volume of radioactive waste.
- Activities related to the safe management of radioactive waste generated are to be performed in compliance with the national strategy, which is part of the National Nuclear Development Strategy. Radioactive waste is to be classified according to the norms issued by the National Commission for the Control of Nuclear Activities (CNCAN). The parameters defining the limits and technical conditions in relation to the final storage of radioactive waste are to be defined by the National Agency for Radioactive Waste (ANDRAD) and approved by Joint Order of the Chairpersons of ANDRAD and CNCAN.
- ANDRAD is responsible for the final storage of spent nuclear fuel and radioactive waste, including waste resulting from the decommissioning of nuclear or radiological installations.
- The funding required to implement these activities derives partly from direct annual contributions due by licence-holders and partly from the State budget. There are also some other sources in the form of donations, sponsorships or financial assistance.

## **Slovak Republic**

### ***Radiation protection***

#### *Act on Public Healthcare (2006)*

Act No. 126/2006 on Public Healthcare entered into force on 1 June 2006. It implements, *inter alia*, EU directives in the field of radiation protection and radiation sources. Pursuant to this new Act, the Ministry of Health has issued the following regulations:

- Regulation No. 334/2006 on the Management of Institutional Radioactive Waste.

- Regulation No. 345/2006 on Basic Safety Requirements on the Health Protection of Workers and the Public Against Ionising Radiation.
- Regulation No. 346/2006 on the Radiation Protection of Outside Workers Exposed to the Risk of Ionising Radiation in Controlled Areas.
- Regulation No. 347/2006 on the Radiation Monitoring Network.
- Regulation No. 348/2006 on the Control of High-activity Radioactive Sources and Orphan Sources.
- Regulation No. 349/2006 on Radiation Protection During the Shipment of Radioactive Sources and Radioactive Substances.
- Regulation No. 350/2006 on the Elimination of Exposure to Natural Radiation.

### ***Radioactive waste management***

#### *Act establishing a Nuclear Decommissioning Fund (2006)*

A new Act on a Fund for the Decommissioning of Nuclear Installations and for the Management of Spent Fuel and Radioactive Waste (No. 238/2006) has replaced the previous Act on the State Nuclear Fund No. 254/1994. This new legislation has already been amended by Act No. 258/2006.

Pursuant to this act, a completely new fund has been established. The most important change is that financial contributions are collected separately on individual accounts for each nuclear installation in the Slovak Republic. These contributions may only be used to cover reasonable expenses arising from decommissioning, and from the management of spent fuel and radioactive waste originating from the relevant nuclear installation. This act only applies to the decommissioning of nuclear installations and management of their radioactive waste and does not apply to radiation sources used in medicine or industry.

During the drafting of this legislation, the question arose as to how to finance the decommissioning of the NPP Bohunice A1<sup>1</sup>, NPP Bohunice V1<sup>2</sup> and the management of spent fuel and radioactive waste arising therefrom. These nuclear installations have been always operated by the State to provide electricity. Up to 1994, no financial contributions or fees to cover future decommissioning were charged. Furthermore, contributions paid by operators since 1994 have been deemed to be insufficient.

Pursuant to the new act, the operators of electricity distribution networks are obliged to transfer to the State budget a percentage of the monies they receive from electricity customers. This tax is one of the most important sources of the Nuclear Decommissioning Fund and is credited directly and exclusively to the NPP Bohunice A1 and V1 accounts.

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1. This plant was in operation for four years and was shut down in 1977 after a nuclear accident.
  2. This plant's two reactors have been in operation since 1978-80, and are to be shut down before 2008.

## ***Environmental protection***

### *Act on Environmental Impact Assessment (2006)*

The 1998 Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters (see *Nuclear Law Bulletin* No. 62) entered into force for the Slovak Republic on 5 March 2006. This new Act on Environmental Impact Assessment No. 24/2006 replaces the previous legislation on the same subject (Act. No. 127/2004) and implements Council Directive 85/337/EC of 27 June 1985 on the Assessment of the Effects of Certain Public and Private Projects on the Environment and Directive 2001/42/EC of the European Parliament and of the Council of 27 June 2001 on the Assessment of the Effects of Certain Plans and Programmes on the Environment.

## **Slovenia**

### ***Radiation protection***

#### *Regulation on Approved Experts for Radiation and Nuclear Safety (2006)*

This Regulation was adopted on 8 March 2006 and was published in Official Gazette No. 51/06. With respect to the procedure for obtaining a licence to carry out the work of an approved expert for radiation and nuclear safety, the regulation establishes a verification programme to ensure that the necessary conditions are fulfilled and it appoints a special three-member expert commission to examine the fulfilment of these conditions. It also defines the method to be used for keeping records on approved experts, the format and extent of regular and exceptional reports and other conditions that approved experts must meet to assess radiation and nuclear safety.

### ***Radioactive waste management***

#### *Regulation on the Classification of Radioactive Waste (2006)*

This Regulation, adopted on 6 March 2006 and published in Official Gazette No. 49/06, provides a classification of radioactive waste with regard to the level and type of radioactivity. It defines radioactive waste and spent fuel management and sets out requirements with regard to reporting on the production of radioactive waste and spent fuel. Furthermore it determines the method to be used to maintain the central records on the production of radioactive waste and spent fuel and to administer the records on radioactive waste and spent fuel in storage or disposal.

## **Spain**

### ***Radiation protection***

#### *Decree on the Control of High-activity Sealed Radioactive Sources and Orphan Sources (2006)*

Royal Decree 229/2006, adopted on 24 February 2006, implements Council Directive 2003/122/Euratom of 22 December 2003 on the Control of High-activity Sealed Radioactive Sources and Orphan Sources (see *Nuclear Law Bulletin* Nos. 72 and 73).

The aim of this decree is to prevent exposure of workers and the public to ionising radiation arising from inadequate control of high-activity sealed radioactive sources or orphan sources. Orphan sources are sealed sources which have never been under regulatory control or which have been abandoned, stolen, lost, misplaced or transferred without proper notification of the competent authority.

This royal decree is to be applied in conjunction with other instruments, such as the 1999 Regulations on Nuclear and Radioactive Installations (see *Nuclear Law Bulletin* No. 66) and the 2001 Regulations on Health Protection against Ionising Radiation (see *Nuclear Law Bulletin* No. 68). Both of these instruments implement Directive 96/29/Euratom Laying Down Basic Safety Standards for the Protection of the Health of Workers and the General Public Against the Dangers Arising From Ionising Radiation.

### ***Regime of radioactive materials***

#### *Order on Activities in the Front End of the Nuclear Fuel Cycle (2005)*

This Order of the Ministry of Industry, Tourism and Trade ITC/2821/2005, adopted on 7 September 2005, amends the quantities laid down in Article 3(c) of Royal Decree No. 1464/1999 on Activities Comprising the Front End of the Nuclear Fuel Cycle (see *Nuclear Law Bulletin* No. 67).

It aims to adapt the reserves of enriched uranium to the actual situation with regard to uranium concentration, conversion and enrichment. This reserve was established by the Royal Decree of 1999, which provided for subsequent modification of the quantities of this reserve through Order of the Ministry of Industry and Energy (now the Ministry of Industry, Tourism and Trade).

### ***Radioactive waste management***

#### *Decree-Law on Urgent Reforms to Promote Productivity and Improve Public Contracting (2005)*

Article 25 of this Royal Decree-Law 5/2005, adopted on 11 March 2005, modifies the Sixth Addendum of Law 54/1997 on the Electricity Sector, which regulates the funds financing the activities of the General Radioactive Waste Plan, managed by the National Enterprise for Radioactive Waste (ENRESA).

This decree-law modifies the system of financing the management of radioactive waste and spent fuel and the decommissioning of nuclear power plants. It provides that licensees must finance in advance, during the operative lifetime of the nuclear power plants, the future costs for decommissioning, spent fuel and waste management. This obligation is applicable as from 1 April 2005.

To fulfil this obligation, ENRESA bills licensees the sum resulting from multiplying the gross kilowatt-hour (kWh) generated by each nuclear power plant during each calendar month by a unit value specific to each plant, calculated on the basis of criteria such as remaining lifetime or the volume of waste generated. The system is made more flexible by the fact that the said unit values are revised annually.

This decree-law further provides that the State will become the owner of radioactive waste once it has been sent for definitive disposal. The State will also be responsible for surveillance following



the decommissioning of a nuclear or radioactive facility, once the period of time established in the Statement of Closure has expired. This applies in particular to uranium mines.

#### *Law on Reforms for the Promotion of Productivity (2005)*

Article 8 of this Law 24/2005, adopted on 18 November 2005, adds a Sixth Addendum *bis* to Law 54/1997 on the Electricity Sector, establishing a new Corporate Public Entity (*Entidad Pública Empresarial*) to replace the National Enterprise for Radioactive Waste ENRESA. Upon approval of the Statutes of this new Corporate Public Entity ENRESA by Royal Decree, the existing *Empresa Nacional de Residuos Radiactivos, S.A.* (ENRESA) will be dissolved. The new Corporate Public Entity will legally succeed ENRESA in all its rights and duties. Its dissolution and liquidation shall be approved by agreement of the Council of Ministers.

This law further declares spent fuel and radioactive waste management, including decommissioning of radioactive and nuclear installations, to be a public service. Pursuant to Article 128.2 of the Spanish Constitution, essential resources or services, particularly in the case of monopoly, may be reserved by law to the public sector. Accordingly, this public service will be directly managed by the Corporate Public Entity ENRESA, following the instructions set out in the General Radioactive Waste Plan approved by the Government.

A series of fees are established to pay for the services of this public entity, which will be invested in the Fund for the financing of the activities of the General Radioactive Waste Plan. The Government is enabled to revise the elements of determination of the fees' quota through a Royal Decree, upon the information of an annual financial report about the activities of the General Radioactive Waste Plan.

Article 14 of this Law modifies Addendum Seven of Law 54/1997 on the Electricity Sector with regard to the transfer of the property of nuclear power plants under moratorium. Following the principle of free competition, it is established that the market value of the land on which these installations are situated will be determined by public auction or tender. The licensee of the installation is entitled to participate in this process.

Article 16 of this Law modifies the 1964 Act on Nuclear Energy (see *Nuclear Law Bulletin* No. 2) with the addition of new obligations in the area of nuclear safeguards and physical protection of nuclear materials.

Article 17 of this Law amends the 1980 Act setting up a Nuclear Safety Council – *Consejo de Seguridad Nuclear* (see *Nuclear Law Bulletin* Nos. 25, 66 and 69) by providing that instructions emitted by this public body shall be binding when they are notified or published in the Spanish Official Journal.

## **Switzerland**

### ***General legislation***

#### *Second Set of Ordinances on Nuclear Energy (2006)*

The Federal Act on Nuclear Energy, adopted in March 2003 (see *Nuclear Law Bulletin* Nos. 71 and 72; the text of the law is reproduced in the Supplement to NLB No. 72) and the Ordinance on

Nuclear Energy adopted in December 2004 (see *Nuclear Law Bulletin* No. 75) entered into force on 1 February 2005. The Ordinance on Nuclear Energy contains a large number of the provisions necessary to implement the Act on Nuclear Energy.

On 1 July 2006, ordinances of the Federal Council regulating other fields entered into force. They are as follows:

- Ordinance on the Qualifications of Personnel of Nuclear Installations:

This ordinance sets out criteria with regard to the qualifications, training and professional capacity of personnel of nuclear installations who are involved in nuclear safety.

- Ordinance on Security Controls of Persons in the Field of Nuclear Installations:

The Act on Nuclear Energy sets out a formal legal basis for the security control of persons who carry out activities in nuclear installations. This is an important means of preventing risk. Another ordinance already in force applies only to personnel of the Confederation and military personnel, along with third parties. Further rules have been established in this new ordinance to cover persons working for operators of nuclear installations.

- Ordinance on Surveillance Teams in Nuclear Installations:

In order to protect themselves from malevolent acts, Swiss nuclear power plants and the intermediate repository of Würenlingen, in the canton of Argovie, already have surveillance teams. The criteria applicable to these surveillance teams was previously set out in a Directive of the Federal Office of Energy. The new ordinance now comprehensively covers the duties and obligations of surveillance teams, and regulates their equipment and arms. The training of surveillance personnel is carried out by the cantons in co-operation with the competent federal bodies.

- Ordinance on Recipients and Pipes Classified for Safety Purposes in Nuclear Installations:

In addition to the terms of the Act on Nuclear Energy and the Ordinance on Nuclear Energy, this ordinance sets out specific criteria for the safety and periodical control of recipients and pipes. It replaces out-of-date provisions on the technical safety of recipients and other gas-pressured machinery and consolidates in one legal instrument the most important rules previously set out in directives.

# INTERNATIONAL REGULATORY ACTIVITIES

## **International Atomic Energy Agency**

### *Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management – Second Review Meeting (2006)*

As of 13 September 2006, 41 States and Euratom are Party to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management (hereinafter the “Joint Convention”; see *Nuclear Law Bulletin* Nos. 60, 67, 69 and 74), which entered into force on 18 June 2001.

The primary objective of the Joint Convention is to achieve and maintain a high level of nuclear safety worldwide in spent fuel and radioactive waste management, through the enhancement of national measures and international co-operation.

Pursuant to Article 30 of the Joint Convention, the Second Review Meeting of the Contracting Parties to the Convention was held at IAEA Headquarters, Vienna, Austria, from 15 to 24 May 2006.

As for the first Review Meeting held in 2003 (see *Nuclear Law Bulletin* No. 74), the main purpose of the second Review Meeting was to review the safety of spent fuel and radioactive waste management, focusing on the steps and measures already taken and on progress made in implementing the obligations stipulated in the convention, including the respective national policies and practices of Contracting Parties.

Forty States and Euratom participated in the Review Meeting. The President of the Review Meeting was Mr. André-Claude Lacoste, Director General of the General Directorate for Nuclear Safety and Radiation Protection, France. A number of issues were discussed at the Review Meeting and an outcome of the meeting is available in a comprehensive and publicly available, 39-paragraph Summary Report.<sup>1</sup>

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1. Summary report of the second Review Meeting of the Contracting Parties to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management [JC/RM.2/03/Rev.1, 23 May 2006]: [www-ns.iaea.org/downloads/rw/conventions/second-review-meeting/summary-report-of-the-second-review-meeting.pdf](http://www-ns.iaea.org/downloads/rw/conventions/second-review-meeting/summary-report-of-the-second-review-meeting.pdf).

### ***Civil Liability for Nuclear Damage – International Expert Group on Nuclear Liability (INLEX)***

The International Expert Group on Nuclear Liability (INLEX) established by the Director General in 2003 (see *Nuclear Law Bulletin* Nos. 74 and 75), held its fifth and sixth meetings in July 2005 and May 2006, respectively.

During the course of these meetings, the Group continued its work on addressing possible gaps and ambiguities in the existing nuclear liability regime. Some of the Group's conclusions and recommendations in this regard are set out in the explanatory texts on the nuclear liability instruments adopted under the IAEA's auspices in 1997, as a comprehensive study and authoritative interpretation of the Agency's nuclear liability regime. The texts have been posted (in all IAEA official languages) on the IAEA's website and will also be published as part of the IAEA International Law Series.

Other conclusions and recommendations are reflected in the Group's outreach activities. In this respect, the first outreach activity of the Group, the Regional Workshop on Liability for Nuclear Damage, was held in Sydney, Australia, from 28 to 30 November 2005. A second regional workshop for IAEA Member States of the Latin America region will be held in Lima, Peru, from 11 to 13 December 2006.

Finally, other conclusions and recommendations of the Group are reflected in Annex 3 to the Nuclear Safety Review for the Year 2005 [see document GC(50)/INF/2]. Further information on the work of Group, in particular during 2006, is also provided in the report by the Director General on co-operation in nuclear, radiation and transport safety and waste management [see paragraphs 156-158 of document GOV/2006/40-GC(50)/3].

### ***Resolutions Adopted by the IAEA General Conference (2006)***

The 50<sup>th</sup> regular session of the IAEA General Conference was held in Vienna, from 18 to 22 September 2006 with the participation of delegates from 132 Member States and representatives of various international organisations.

A number of resolutions were adopted by the General Conference. The following takes note of the two Resolutions GC(50)/RES/10 relating to nuclear, radiation and transport safety and waste management and GC(50)/RES/11 relating to nuclear security. Some of the relevant sections of Resolution 10 can be summarised as follows:

#### ***Measures to Strengthen International Co-operation in Nuclear, Radiation and Transport Safety and Waste Management [GC(50)/RES/10]***

In Part A.1 of the resolution, the Conference requested the Director General to continue the current programme (which included legislative assistance) to assist Member States in improving their national infrastructures for nuclear installation, radiation, transport and waste safety.

#### ***Nuclear Installation Safety***

In Part A.3 of the resolution, the General Conference noted with satisfaction that all States currently operating nuclear power plants are now Contracting Parties to the Convention on Nuclear Safety, and urged all Member States considering a nuclear power programme to become Parties to the convention as part of the establishment and maintenance of the requisite nuclear power infrastructure.

The Conference also welcomed the efforts of the Contracting Parties to the Convention on Nuclear Safety to enhance the transparency, efficiency and effectiveness of the review process and encouraged them to pursue these efforts in preparation for the Review Meeting in 2008.

The Conference also continued to endorse the principles and objectives of the Code of Conduct on the Safety of Research Reactors and encouraged Member States constructing, operating or decommissioning research reactors or with research reactors in extended shutdown to apply the guidance in the code. The Conference supported the recommendation of the open-ended meeting on the effective application of the code hosted by the Agency from 14 to 16 December 2005 that periodic meetings be organised to discuss the application of the code in Member States.

#### *Safety of Radioactive Waste Management*

In Part A.5 of the resolution, the General Conference welcomed the increase in the number of Contracting Parties to the Joint Convention and appealed to all Member States which have not yet become Party to the Joint Convention to do so. The Conference also endorsed the conclusions and recommendations of the second Review Meeting and called upon the Contracting Parties to take steps to further improve the implementation of their obligations and to further enhance safety in the management of spent fuel and radioactive waste, particularly in those areas identified as warranting further attention.

#### *Nuclear and Radiological Emergency Preparedness and Response*

In Part A.8 of the resolution, the General Conference again urged all Member States to become Parties to the Convention on Early Notification of a Nuclear Accident (the Early Notification Convention) and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (the Assistance Convention), thereby contributing to a broader and improved basis for international emergency response, to the benefit of all Member States.

The Conference also continued to encourage all Member States to enhance, where necessary, their own preparedness and response capabilities for nuclear and radiological incidents and emergencies, including their arrangements for responding to acts involving the malicious use of nuclear or radioactive material and to threats of such acts, and to adopt and implement relevant international standards and guidelines.

Additionally, the Conference welcomed the initiative to develop a new Code of Conduct on International Emergency Management related to nuclear and radiological incident and emergency response, with the objective of ensuring appropriate development, implementation and maintenance of harmonised emergency preparedness and response programmes.

#### *Safety and Security of Radioactive Sources*

In Part A.9 of the resolution, the General Conference continued to endorse the principles and objectives of the non-legally-binding Code of Conduct on the Safety and Security of Radioactive Sources and welcomed the high level of global support for the code. The Conference noted that, as at 11 September 2006, 86 States had made a political commitment to it in line with Resolutions GC(47)/RES/7.B and GC(48)/RES/10.D and urged other States to make such a commitment.

The Conference underlined the important role of the Guidance on the import and export of radioactive sources for the establishment of continuous, global control of radioactive sources and noted that, as at 11 September 2006, 33 States had notified the Director General, pursuant to Resolution GC(48)/RES/10.D, of their intention to act in accordance with the guidance on a harmonised basis. The Conference reiterated the need for States to implement the guidance in a co-operative, harmonised and consistent fashion and noted that the guidance is supplementary to the code and encouraged those States which have not already notified the Director General to do so, recalling operative Paragraph 6 of Resolution GC(47)/RES/7.B, and encouraged the Secretariat to make available relevant information that will facilitate States' implementation of the guidance, subject to the consent of the States concerned.

In addition, the Conference welcomed the progress made by many Member States in working towards implementing the Code of Conduct and the supplementary guidance, and encouraged other States to do the same to ensure the sustainability of the control of radioactive sources. The Conference also recognised the value of information exchange on national approaches to controlling radioactive sources.

#### *Civil Liability for Nuclear Damage*

In operative Paragraph 11 of the resolution, the General Conference again welcomed the valuable work that INLEX has done over the past year to clarify the application and scope of the international nuclear liability regime, including its outreach workshop in Australia in November 2005 for representatives of countries in Asia and the Pacific. The Conference also looked forward to the continuation of INLEX's work, including its further examination of possible ways in which identified gaps in the regime might be addressed and its outreach workshop in Peru in December 2006 for Latin American countries.

#### *Transport Safety*

In Part B of the resolution, the General Conference stressed the importance of having effective liability mechanisms in place to insure against harm to human health and the environment as well as actual economic loss due to an accident or incident during the maritime transport of radioactive materials and welcomed the continuing work of INLEX in this regard.

#### *Nuclear Security – Measures to Protect Against Nuclear Terrorism [GC(50)RES/11]*

The General Conference again reaffirmed the importance of the Convention on the Physical Protection of Nuclear Material (CPPNM) and called on States to ratify this convention and its amendment adopted in July 2005.

The Conference also recalled that other international agreements negotiated under the auspices of the Agency are relevant to an integrated approach to nuclear security and the physical protection of nuclear material and other radioactive materials against the threat of nuclear and radiological terrorism, based on prevention, including the Early Notification and Assistance Conventions, the Convention on Nuclear Safety and the Joint Convention.

The Conference also noted the central contribution of Agency safeguards agreements and additional protocols, and also of States' systems of accounting for and control of nuclear materials, to the prevention of illicit trafficking and to deterring and detecting diversion of nuclear materials.

In operative Paragraph 4 of the resolution, the General Conference expressed its deep satisfaction at the adoption by the United Nations General Assembly of the International Convention for the Suppression of Acts of Nuclear Terrorism as the 13<sup>th</sup> multilateral legal instrument dealing with terrorism. The Conference invited all States that have not yet done so, to sign it before 31 December 2006 and to strive for its early entry into force.

***IAEA 50<sup>th</sup> General Conference – Special Event – New Framework for the Utilisation of Nuclear Energy: Assurances of Supply and Non-proliferation***

The special event entitled “New Framework for the Utilisation of Nuclear Energy in the 21<sup>st</sup> Century: Assurances of Supply and Non-proliferation”, organised by the IAEA Director General, was held from 19 to 21 September 2006.

The special event was held to facilitate discussion among the IAEA's Member States of various suggestions regarding new approaches to the nuclear fuel cycle which essentially aim to establish an assured supply of nuclear fuel, as a back-up measure to the commercial market, in certain situations. In addition, the purpose was also to further the discussion of the challenge of meeting increasing global energy demands through a possible expansion of the use of nuclear energy, while at the same time minimising the proliferation risks created by the further spread of sensitive nuclear technology such as uranium enrichment and plutonium reprocessing.

As reflected in the report of the Chairman of the special Event, Mr. Charles Curtis, President of the Nuclear Threat Initiative (NTI), one of the outcomes recognised that the various suggestions tabled so far indicated that establishing a fully-developed multilateral framework that is equitable and accessible to all users of nuclear energy will be a complex endeavour that would likely require a progressively phased approach.

The report identified that a possible way forward may include a first – near term – phase, focusing on establishing mechanisms for assurances of supply of nuclear fuel for nuclear power plants and a second – mid and long term – phase, focusing on the possibilities of evolving a truly comprehensive multilateral system, integrated with commercial market mechanisms and designed to assure supply adequacy and responsible management and disposition of waste. In this regard, the IAEA Secretariat is presently formulating the proposals and structuring them in terms of policy, legal and technical issues, while at the same time taking into account current as well as future proposals and other relevant ideas and studies so as to allow consideration of these matters by the IAEA Board of Governors in 2007.

Further information on the special event is available on the International Atomic Energy Agency's website, including the above-mentioned report of the Chairman:  
[www.iaea.org/About/Policy/GC/GC50/SideEvent/report220906.pdf](http://www.iaea.org/About/Policy/GC/GC50/SideEvent/report220906.pdf).

## **European Union**

### ***Communication of the European Commission on Verification of Environmental Radioactivity Monitoring Facilities (2006)***

This communication deals with the verification of environmental radioactivity monitoring facilities under the terms of Article 35 of the Euratom Treaty as regards practical arrangements for the conduct of verification visits in Member States. It was published in Official Journal C 155 of 4 July 2006 at pages 2 to 5.

The practical arrangements for carrying out verifications under Article 35 were traditionally agreed on the basis of bilateral meetings held with the authorities concerned in the Member States in order to clarify the scope, intention and conduct of such verifications. Conclusions were subsequently laid down in bilateral protocols forwarded through the permanent representatives to the national authorities and approved by the Member States. Following enlargement of the Community to 25 Member States as from May 2004, the need was felt to establish a common basis for Article 35 verifications in all Member States by means of a Commission communication, which may be supplemented, if necessary, by bilateral protocols between individual Member States and the Commission services.

### ***Commission Recommendation on the Efficient Use of Nuclear Decommissioning Funds (2006)***

On 24 October 2006, the Commission adopted a recommendation on the efficient use of nuclear decommissioning funds. The recommendation proposes measures to ensure adequate and properly managed financial resources for all decommissioning activities of nuclear installations as well as for the safe management of spent fuel and radioactive waste. While a segregated fund – either externally or internally managed – with appropriate controls on use is the preferred option for all nuclear installations, a clear recommendation to this effect is made for the newly established ones.

The recommendation proposes the establishment of competent national bodies, which are independent in their decisions from the contributors to the decommissioning funds, with a mandate and the capacity to deliver an expert judgment on decommissioning matters.

### ***Council Decision on ITER (2006)***

On 25 September 2006, the Council of the European Union adopted a decision approving the conclusion of an international Agreement on implementation of the International Thermonuclear Experimental Reactor (ITER) fusion energy project (see *Nuclear Law Bulletin* No. 77). The decision authorises the Commission to conclude an agreement between the EU's Atomic Energy Community (Euratom), China, India, Japan, the Republic of Korea, the Russian Federation and the United States on the establishment of the ITER International Fusion Energy Organisation for the joint implementation of the ITER project. It also approves the conclusion of an arrangement on provisional application of the agreement.

The purpose of the ITER Organisation is to provide for and promote co-operation among the members of the ITER project, which aims to demonstrate the scientific and technological feasibility of fusion energy for peaceful purposes. The functions of the Organisation include the construction, operation and exploitation of ITER facilities and the promotion of public understanding of fusion energy.



The agreement, with an initial duration of 35 years, will enter into force once ratified by ITER partners when construction commences. The EU will contribute to 50% of construction costs.

The ITER experimental reactor and the Headquarters of the Organisation will be situated in Cadarache (France).

A joint undertaking, which will be based in Barcelona (Spain), will manage the EU contribution to the ITER Organisation.

# BIBLIOGRAPHY AND NEWS BRIEFS

## BIBLIOGRAPHY

### Germany

***Existing Nuclear Power Plants and New Safety Requirements – An International Survey, Christian Raetzke/Michael Micklinghoff, Berlin, 2006, 528 pages***

This book is a bilingual edition, published in both English (Nuclear Power Plants and New Safety Requirements – An International Survey) and German (*Bestehende Kernkraftwerke und Neue Sicherheitsanforderungen – Ein Internationaler Vergleich*).

The report examines to which extent and by what means new requirements can be applied to existing nuclear power plants. The question of existing nuclear power plants and new safety requirements has acquired heightened importance in recent years in all nuclear power producing countries. As existing installations reach a certain age, the challenge of new and possibly more advanced safety requirements poses many questions. This report examines which criteria are applied when evaluating the safety level of existing nuclear power plants and how backfitting measures – if necessary – are conceived and implemented.

The Association of German nuclear operators – VGB PowerTech – commissioned Christian Raetzke, who is a lawyer and specialist in nuclear law and has been working for German nuclear power plant operators since 1999, to write this report. This book is the result of his collaboration with Michael Micklinghoff, who holds a PhD in physics and has been for many years Head of the Department Nuclear Regulation and Policy of a German utility.

This book is based on a survey in nine countries, namely Belgium, Finland, France, Germany, Spain, Sweden, Switzerland, the United Kingdom and the USA. After an introductory chapter with some general reflections on different categories of backfitting, each of these countries is dealt with in a national report. The national report starts with a general introduction into the regulatory system. Then the question of new requirements for NPPs is dealt with in detail. In a final chapter, the results of the national reports are brought together, compared and evaluated.

***50 Jahre Internationale Atomenergie-Organisation IAEA: Ein Wirken für Frieden und Sicherheit im nuklearen Zeitalter, by Dirk Schriefer/Walter Sandtner/Wolfgang Rudischhauser (eds.), Nomos Verlagsgesellschaft, Baden-Baden, 2006, 218 pages\****

The 50<sup>th</sup> meeting of the International Atomic Energy Agency's General Conference was held in September 2006. On 29 July 2007, the IAEA Statute will have been in force for 50 years. The Federal Republic of Germany joined the Agency almost at the beginning, depositing its instrument of ratification on 1 October 1957 as the 53<sup>rd</sup> State to do so. There is therefore a window of opportunity to celebrate the anniversary of an international organisation with an outstanding record. This publication, sponsored by the German Federal Foreign Office, seizes this occasion by offering a compilation of 16 well-selected contributions in the German language.

Introduced by the German Ministers for Foreign Affairs and for Economic Affairs, Frank-Walter Steinmeier and Michael Glos, and by IAEA Director General, Mohamed ElBaradei, the volume undertakes to review 50 years of activity of the IAEA as well as German contributions thereto. From different angles, German experts, working for ministries, in the business field, at university establishments and at the IAEA itself, aim to promote understanding of the Agency's work. Or, as Minister Glos emphasises in his introductory remarks, the compilation serves to reflect the long-lasting close and trusting co-operation between Germany and the IAEA.

The first contribution by Hans-Friedrich Meyer, a former spokesman of the IAEA, deals with the history of the Organisation (pp. 10-29), presenting the recollections of a senior official over time. Meyer focuses especially on the years immediately before and after the establishment of the Agency. He notes that nuclear energy was traditionally either associated with medical applications or – in Germany's war years – with its use for military purposes. Consequently, the UN General Assembly was right to expand the scope of activities of the proposed Atomic Energy Agency from verification tasks to peaceful uses, too. The newly-founded Federal Republic of Germany strongly supported this two-fold approach, which proved to be a challenge for the following decades but also was the strength of the Organisation's work. Meyer recalls a number of key decisions that had to be taken at the first General Conference meeting, including the choice of Vienna as Headquarters, the decision on the first budget, the composition of the Board of Governors, and the approval of the relationship agreement with the UN. Other important aspects were the first safeguards inspections in the Norwegian research reactor near Oslo and the foundation of the IAEA's research laboratory at Seibersdorf. The next step had to be taken when the Nuclear Non-Proliferation Treaty entered into force in 1970, requiring that the whole system of safeguards be reviewed. Furthermore, regional agreements on nuclear weapon-free zones needed to be taken into account. The Organisation was confronted with new challenges, such as the accident at Chernobyl in 1986 leading to the immediate formation of working groups and a number of subsequent activities on nuclear safety and liability. Starting in the 1990s, possible improvements to the safeguards system once again became the focus, following the detection of undeclared activities in Iraq and the DPRK, which were finally reflected in the drafting of the Additional Protocol. In its fifty years of existence, the author concludes, the IAEA managed to achieve a politically and technically well-respected place within the UN family. This was the result of its activities as moderator between Member States in relation to the peaceful uses of nuclear energy and as an institution for nuclear security. However, appreciation for the IAEA is now particularly high

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\* This book review was kindly contributed by Dr. Sebastian Seidel, currently Legal Adviser and Deputy Head at the Federation of German Industries' Representation to the European Union, Brussels. Before that, he was, *inter alia*, a participant at the International School of Nuclear Law (2003) and received a Legal Doctorate in International Law with a thesis on Supervisory and Dispute Settlement Mechanisms in Arms Control Law (2004).

with regard to safeguards and verification activities, as reflected in the award of the Nobel Peace Prize to the Agency as well as to its present Director General ElBaradei.

The bodies of the IAEA and their handling of Iraq and other recent crises are the subject of comment by the German Representative for Arms Control and Disarmament issues, Ambassador Friedrich Gröning, jointly with the Head of the IAEA Unit at the Federal Foreign Office Wolfgang Rudischhauser (pp. 32-57). The Board of Governors is considered to have changed from a body of nuclear experts into a diplomatic forum, shifting from consensual “Vienna spirit” to confrontational voting procedures. In parallel, the Director General’s role had changed from a technical administrator to the advocate of the Non-Proliferation Treaty. The authors then turn to an aspect of the highest interest: the division of labour between the Board of Governors and the UN Security Council. According to the Statute, it’s all very simple: any established non-compliance with the safeguards obligations is to be reported from the inspectors through the Director General to the Board of Governors, which in turn informs the UN Security Council and General Assembly. However, things are more complicated when it comes to the practical application of such regulations. It does therefore not come as surprise when Gröning and Rudischhauser underline that there is an on-going debate on the question of when, how and in which way such a report needs to be filed – let alone the notion of “non-compliance”, a term that has been subject to intense research in the recent past, but is still impossible to define. In addition, once an issue has been brought to the attention of the Security Council, the Board of Governors may continue to take its own course of action, even though the sanctions regimes under the IAEA General Conference and under the UN Security Council remain entirely different. The authors then chose the cases of Iraq, Iran and North Korea to demonstrate in detail that in each of these situations, initiatives to find solutions were pursued outside formal bodies.

Another interesting contribution is presented by Walter Sandtner, Head of the Unit for International Nuclear Energy Organisations at the Ministry for Economic Affairs. Sandtner explains the development of the IAEA Safeguards System (pp. 58-75) as a two-step process, complemented by regional initiatives such as Euratom and resulting in recent calls for further action (Committee 25). Following the Baruch Plan and the famous “Atoms for Peace” speech by President Eisenhower, the classical system of comprehensive safeguards [INFCIRC/153] had been established as a first step, based on Article XII of the IAEA Statute. At that time, it was perceived as a sufficient measure to prevent the illegal diversion of nuclear material for its deployment in atomic weapons or other nuclear devices. However, 20 years later it became clear that South Africa, Iraq and North Korea had managed to maintain illegal nuclear weapons programs, demonstrating that the traditional system needed some revision. This resulted in the 1997 Model Additional Protocol [INFCIRC/540]. Sandtner then turns to the call for further strengthening safeguards through the Committee 25, advocated by the US Administration and others. Nevertheless he concludes that “not a few Member States” take the view that with the Additional Protocol, an effective set of instruments has been created, which first of all needs to be ratified by Member States. The adoption of supplementary standards appears to be less urgent. He closes with a number of remarks regarding the sometimes difficult and remote relationship between Euratom and the IAEA. However, he concludes that this partnership has eventually become one based on equal standing, which might be underlined by the recent EU celebration of 25 years of nuclear safeguards co-operation.

Dirk Schriefer, former Director for Safeguards at the IAEA, contributed a number of texts to this publication. At the beginning, he explains briefly and concisely the main tasks of the IAEA (pp. 30-31), referring to nuclear verification and safeguards, nuclear safety and security as well as nuclear applications and technologies. A comprehensive contribution is devoted to the cornerstones of the safeguards system (pp. 76-95), reflecting the rich experience of the IAEA’s practitioner. Schriefer describes the purpose and aims of classical safeguards and the associated verification concept, closing with some insightful remarks on the relationship between special inspections and the complementary

access concept under the Additional Protocol. He then turns to “safeguards today” and portrays the recently achieved improvements to the verification system, in particular through the Additional Protocol and measures such as environmental sampling, the assessment of satellite information and the use of open source and data base material. All this is accompanied by data guiding the reader to the practical question of what extent of security may actually be expected for the EUR 100 million that 141 Member States spend on safeguards. For Schriefer the answer seems relatively clear: the system needs further strengthening through technical improvements, more intense communication between the Agency and the States and, last but not least, a better disarmament policy, based on reliable steps which the recognised nuclear-weapon States have to take.

The book closes with a contribution by Wolfram Tonhauser, Head of Section for Nuclear and Treaty Law at the IAEA’s Office of Legal Affairs, on “The International Legal Agreements – An Overview” (pp. 194-207). In his article, he covers in several sections the most prominent international treaties and other normative texts. Starting out with the Statute and the typical agreement on privileges and immunities of the Organisation, Tonhauser deals in quite a few sub-chapters with legal and non-legal documents on all important aspects of the Agency’s work, spanning nuclear safety and security, safeguards and non-proliferation, liability for nuclear damage and technical co-operation.

As it is impossible to review all – sometimes shorter – contributions, the following items shall be mentioned as they fall within the purview of the *Nuclear Law Bulletin*: Anita Nilsson/Dirk Schriefer: “The Fight Against Nuclear Terrorism”, pp. 108-120; Dirk Schriefer: “The IAEA and The United Nations System”, pp. 149-153; Wilhelm Gmelin: “IAEA and Euratom – A Not Always Well-balanced Relationship”, pp. 154-167. Other pieces of writing deal especially with aspects of the relationship between Germany and the IAEA, such as the German national R&D programme in support of the Agency’s activities.

The purpose of this publication is to honour 50 years of IAEA work for peace and development in nuclear affairs. It certainly draws an impressive picture and presents the first half century of the Agency in an extremely lively way. The book has been published at the right time, closing a gap in German writing on international nuclear affairs.

## **Sweden**

### ***Weapons of Terror – Freeing the World of Nuclear, Biological and Chemical Arms, Stockholm, 2006, 227 pages\****

This report, recently published by the independent international Weapons of Mass Destruction Commission – WMDC, chaired by Hans Blix, puts forward a number of concrete proposals on how the world could be freed of nuclear, biological and chemical weapons. It analyses the threats under which the world is living today – above all, 27 000 nuclear weapons and efforts by individual States and perhaps terrorist groups to develop or obtain different kinds of weapons of terror. The report discusses how these threats and risks can be addressed, including current issues such as Iran and the Middle East, North Korea, India and Pakistan.

The Commission’s 14 members from all continents state that common global efforts to achieve arms limitation and disarmament have stagnated. After 50 years of cold war, we even see the risk of arms races involving new types of nuclear weapons, space weapons and missiles.

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\* The information in this Note has been taken from a press release issued by the WMDC on 1 June 2006, available on its website at [www.wmdcommission.org](http://www.wmdcommission.org).

The Commission concludes that it is high time to revitalize global cooperation on disarmament and it presents a list of 60 recommendations. First, that all governments should accept the Comprehensive Test Ban Treaty that was adopted ten years ago, that States currently in possession of nuclear weapons must reduce their arsenals and that they must stop producing plutonium and highly enriched uranium for more nuclear weapons. The Commission advises that the world must aim at achieving a ban on both possession and use of nuclear weapons, in the same way as bans that apply to biological and chemical weapons.

As part of a new, concerted effort, the Commission proposes that a world summit be called at the United Nations in New York on disarmament, non-proliferation and terrorist use of weapons of mass destruction. This summit should also discuss and decide on reforms to make the UN disarmament more effective. To break deadlocks at the Conference on Disarmament in Geneva, the Commission proposes that unanimity should no longer be required for issues to be put on the agenda, but that a two-thirds majority should suffice.

Commenting on the Commission's work, Dr. Blix says that although existing international treaties have shown weaknesses, a policy based on unilateralism and military actions has failed and has been costly in terms of lives and resources. Efforts to jointly create global security must now be intensified. He concludes that all States – especially those with nuclear weapons – have a responsibility and must contribute to this process.

This report can be downloaded from the WMDC website at:  
[www.wmdcommission.org/files/Weapons\\_of\\_Terror.pdf](http://www.wmdcommission.org/files/Weapons_of_Terror.pdf).

## NEWS BRIEFS

### OECD Nuclear Energy Agency

#### *Inaugural Session of the European Nuclear Energy Tribunal*

On 24 May 2006, the OECD Council adopted a Resolution concerning the appointment of the judges of the European Nuclear Energy Tribunal (see *Nuclear Law Bulletin* No. 77). This Tribunal was initially established in 1957 pursuant to the Convention on the Establishment of a Security Control in the Field of Nuclear Energy. Its jurisdiction is now limited to resolving differences concerning the interpretation or application of the 1960 Paris Convention on Third Party Liability in the Field of Nuclear Energy and the 1963 Brussels Supplementary Convention.

The Tribunal held its Inaugural Session on 27 October 2006 at the Headquarters of the OECD with the following judges in attendance: Dr. Peter Baumann (Austria), Ms. Mia Wouters (Belgium), Mr. Olivier Talevski (Denmark), Ms. Marie-Claire Guyader (France), Prof. Armin von Bogdandy (Germany), Mr. E.A. Mann (Netherlands) and Prof. Vaughan Lowe (United Kingdom). At that Session, Prof. Armin von Bogdandy was elected President, and Ms. Julia Schwartz, Head of Legal Affairs of the OECD Nuclear Energy Agency, was appointed Registrar of the Tribunal.<sup>1</sup>

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1. The Tribunal approved a number of amendments to its existing Rules of Procedure and requested that the NEA Secretariat undertakes an examination of certain other proposed modifications.

### ***Fiftieth Anniversary of the Nuclear Law Committee***

The Nuclear Law Committee of the OECD Nuclear Energy Agency will celebrate its 50<sup>th</sup> anniversary in early 2007. At its meeting of 24 January 1957, the OECD/NEA Steering Committee for Nuclear Energy decided to establish a Working Party, whose task would be to examine and formulate proposals on the question of harmonisation of legislation concerning third-party liability in the case of damage caused by the peaceful uses of nuclear energy. This Working Party eventually became the Group of Governmental Experts on Third Party Liability in the Field of Nuclear Energy, which in turn was transformed into the Nuclear Law Committee in 2000.

To mark this occasion, a special session of the Committee devoted to its “past, present and future” will be held on Tuesday 6 February 2007 in conjunction with the NLC’s next regulatory scheduled meeting.

### **International Nuclear Law Association**

#### ***2007 Nuclear Inter Jura Biennial Congress in Brussels***

The 2007 Nuclear Inter Jura Congress will be held in Brussels, Belgium from 1 to 4 October 2007, followed by a technical visit which will be organised on 5 October. This congress will be the 18<sup>th</sup> in a series of biennial meetings that began in 1973. It is now the leading international conference for specialists in nuclear law. The following topics will be addressed during the meeting:

- Nuclear safety and regulation.
- Radiological protection.
- Radioactive waste management and decommissioning.
- Transport of nuclear material.
- Radioactive sources management.
- Nuclear liability and insurance.
- International nuclear trade.
- Non-proliferation.
- Nuclear security.
- Nuclear energy and environmental protection.
- European Union nuclear legislation.

Authors are invited to submit an abstract of their proposed paper before 15 January 2007. Further information is available on the website of the congress at: [www.bnla.be](http://www.bnla.be).

### **Eleventh INLA Regional Meeting of the German Branch**

The German branch of the International Nuclear Law Association held its 11<sup>th</sup> Regional Conference in Goslar, Germany, on 9 and 10 November 2006. In organising this conference, the German branch of INLA, joined forces for the first time with a partner, namely the Institute for German and International Mining and Energy Law of the Technical University of Clausthal. The theme of this conference was “Elements of a Global Nuclear Law Regime” and it comprised working sessions on international law and the use of nuclear energy, final disposal of radioactive waste, comparative aspects of nuclear liability law and current problems of German nuclear law.

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