Nuclear Safeguards in the European Community - A Regional Approach

by H.W. Schleicher

INTRODUCTION

Article III of the Non-Proliferation Treaty requires the application of IAEA safeguards to all non-nuclear weapon States party to that Treaty and furthermore foresees that these requirements can be met by the States either individually or together with other States. This latter possibility – that groups of States might act together – was introduced into the text of the Treaty on the suggestion of the Member States of the European Community, because they wanted to maintain their safeguards system based on the Euratom Treaty, which had already been working satisfactorily for many years. Consequently, the seven non-nuclear weapon States in Euratom concluded in 1973, together with the European Community, an agreement with IAEA for the implementation of NPT safeguards. It is based on the INFCIRC/153 model agreement, and in a number of aspects integrates the Euratom system as a single regional entity into the worldwide IAEA system.

Later, in 1976, a similar agreement was concluded among the IAEA, the Community and the United Kingdom (which, like France, is subject to Euratom safeguards) in furtherance of the UK voluntary offer to accept IAEA safeguards on its civilian nuclear installations.

Although France is not a party to the NPT, an agreement has been signed by that country, the Community and the Agency, foreseeing the application of IAEA safeguards in a manner similar to that for the other agreements mentioned, limited, however, to those materials which France wants to put under such safeguards. This agreement is still awaiting ratification by France.

Thus we now find in Western Europe a unique situation in the field of safeguards. This is due to the fact that there exists a regional safeguards authority invested with supranational rights which at the same time not only fulfills, within the framework of the IAEA system, the tasks normally assigned to a national system of accounting and control, but also collaborates with the IAEA in inspections in a way which permits the latter to draw its own independent conclusions. The purpose of this paper is to describe the special features of this system, its merits and difficulties, and to give some indications as to further developments in the field.

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SAFEGUARDS PROVISIONS OF THE EURATOM TREATY

The Euratom Treaty is one of the three treaties, concluded by the same 9 States, establishing the European Community (the others are the Coal and Steel Treaty and that of the Economic Community (Common Market)). The treaties are administered by a single, common Commission which is independent of the Member States. The Council of Ministers, in which the Government of each Member State is represented, makes its decisions upon proposals from the Commission. The Parliament, which since 1979 has been elected directly by the population, has certain well defined rights, especially concerning the budget.

The Euratom Treaty contains, *inter alia,* a chapter on nuclear safeguards. The first article of this chapter (Article 77) reads:

"In accordance with the provisions of this Chapter, the Commission shall satisfy itself that, in the territories of Member States,

(a) ores, source materials and special fissile materials are not diverted from their intended uses as declared by the users;
(b) the provisions relating to supply and any particular safeguarding obligations assumed by the Community under an agreement concluded with a third State or an international organization are complied with."

The following articles of that chapter specify how these aims should be achieved: operators have to communicate to the Commission the basic technical characteristics of their facilities and they have to report regularly stocks and movements of nuclear materials; the Commission sends inspectors to the plants, and these inspectors have access to all locations where nuclear material is present; the Commission can apply sanctions to those operators who do not comply with the provisions, etc. Of particular interest in the present context is that the Commission, in implementing its safeguards, deals directly with the operators and not with the Governments of the Member States. The Euratom safeguards system is therefore a supranational system, with certain rights of sovereignty having been handed over by the States to the European Commission. It has, however, no police force and has only limited responsibility in the field of physical protection.

Article 77 of the Treaty, quoted above, contains two different provisions: that materials are not diverted to uses other than those declared by the users, and that the obligations assumed by the Community under an agreement concluded with a third State or an international organization are complied with. It is worth underlining that, in accordance with Article 77 of the Treaty, Euratom safeguards encompass not only the diversion of nuclear material for the potential production of nuclear weapons (which are equally the concern of the IAEA, particularly in implementing the Non-Proliferation Treaty) but many other aspects concerned with the proper use of the materials, normally defined in supply contracts by which the Community has guaranteed to respect specific obligations.

THE SAFEGUARDS AGREEMENTS WITH IAEA

The Agreement between the seven non-nuclear weapon Member States, the European Community and the IAEA (INFCIRC/193), signed in April 1973, entered into force in February 1977 after ratification by the Member States concerned and after the Commission had established the legal instruments necessary for its implementation. In its structure and provisions it closely follows the model of INFCIRC/153, but it takes account, essentially in

the Protocol and in the Subsidiary Arrangements, of the existence of the Euratom safeguards system. It stipulates then that the Agency shall implement its inspections through the observation of Euratom inspection activities whenever the Agency can achieve the purposes of its routine or ad hoc inspections in that way. It also stipulates that Agency inspectors should be present at certain of the Community inspections. The agreement between the UK, the Community and the IAEA (INFCIRC/263) provides that, in the same way as for the non-nuclear weapons States, reports are transmitted by the Commission to IAEA for all civilian nuclear materials in nuclear facilities. IAEA inspections will, however, be carried out only in such facilities as are from time to time designated by the Agency; it is useful to recall here that Euratom safeguards continue to be applied to all civilian nuclear materials even in the plants not designated by the Agency. This Agreement has been in force since August 1978; IAEA regularly receives the reports on all materials, and routine inspections by IAEA are expected to start soon.

IMPLEMENTATION OF SAFEGUARDS IN THE EUROPEAN COMMUNITY

Regulation 3227/76 and Particular Safeguards Provisions

Following the signature of the safeguards agreements with IAEA, it became necessary for the Commission to adopt a new safeguards regulation to replace the two older ones which had been in force since 1959, and which no longer met the current criteria. This new regulation (3227/76) had to be applicable to nuclear materials and installations in all 9 Member States, including the two nuclear weapon States, and was to permit the Commission to obtain from the plant operators (and all those who deal with nuclear materials) all the information needed by the Community both for transmission to IAEA and for its own purposes. It has been in force since January 1977.

This is not the place to deal with the regulation in detail, and only some important aspects need be mentioned. The regulation defines the obligation of plant operators to communicate the design information of their installations as well as regular and specific reports on material stocks and movements to the Commission (which then reports to IAEA), but it does not deal with questions relating to inspections. (The inspection rights of the Euratom inspectors are very far-reaching and are stated in the Euratom Treaty; the inspection rights of IAEA inspectors are defined in the safeguards agreement and the Facility Attachments, and are not a matter of Community rules.)

The regulation provides that the Commission should specify, for each installation, so-called "particular safeguards provisions". These fix in detail the procedures through which the operators have to fulfill their safeguards obligations and define, in particular, material balance areas, key measurement points, specific accounting and reporting obligations, inventory frequencies and measures for containment and surveillance.

The "particular safeguards provisions" are evidently closely related to the facility attachments which the Commission establishes with IAEA for each installation. However, they are not identical with these, as their legal bases are the Euratom Treaty and the regulation and they also concern obligations which exist only towards the Commission (for instance, to report the origin and use of materials).

Nuclear Installations in the European Community

The nuclear industry in the European Community covers the whole fuel cycle from mining through ore concentration, extraction, enrichment, fuel fabrication, and power reactors to reprocessing and fast breeder reactors, as well as all types of research and development installations. There are about 400 installations of very different sizes, and approximately the following quantities of materials currently under Euratom safeguards:

Plutonium	35 tons
High enriched uranium	13 tons
Low enriched uranium	10 000 tons
Natural uranium	30 000 tons
Depleted uranium	14 000 tons
Thorium	1 300 tons

There is a large trade in nuclear materials throughout the Community, unrestricted by national frontiers. As the Community's own resources are, however, limited, most of the uranium is imported from overseas. To the extent that suppliers attach certain conditions to its use, the Safeguards Directorate has to ensure that these conditions are met.

The expected development of nuclear power has encountered some difficulties in recent years, to different degrees in the different Member States, but it is nevertheless progressing and the installed nuclear capacity is foreseen to increase from 29 GWe in 1979 to about 125 GWe in 1990.

The Safeguards Directorate of the Commission of the European Community

The Directorate of Euratom Safeguards has about 150 staff members of whom about 60 are regularly carrying out inspections. They are drawn from all nine Member States of the Community. They are permanant European civil servants and carry out their responsibilities in a manner which is independent of the States.

The accounting service processes about 20 000 entry lines per month, largely through electronic data processing. For R&D as well as for analytical work, the Directorate, which has only very limited laboratory facilities of its own, relies mainly on the Joint Research Centre of the European Community. The budget, excluding general personnel costs but including costs for travelling and subsistence during inspections, amounts to about 1.5 million European Currency Units (ECU) (1 ECU $\approx$ 1.3$) per year (1979).

Collaboration with IAEA

The first article of the Protocol to the Safeguards Agreement with IAEA specifies that this Protocol "amplifies certain provisions of the Agreement and, in particular, specifies the conditions and means according to which co-operation in the application of the safeguards provided for under the Agreement shall be implemented in such a way as to avoid unnecessary duplication of the Community's safeguards activities".

The subsequent articles follow this concept, stating e.g. that design information shall be examined jointly (Art. 3), that the preparation of facility attachments shall be performed together (Art. 3) and that a Liaison Committee shall be established (Art. 29). There is a considerable number of articles referring to inspections. They say, for instance, that routine

inspection activities shall be co-ordinated (Art. 10), that, subject to general provisions of the Agreement, in determining the actual number, intensity, duration, timing and mode of the Agency inspections, account shall be taken of the inspection effort carried out by the Community in the framework of its multinational system of safeguards (Art. 11); that Agency routine inspections shall be carried out simultaneously with inspection activities of the Community (Art. 14a); that normally, whenever the Agency can achieve the purposes of its routine inspection, the Agency inspectors shall carry out the relevant activities through observation of the inspection activities of the Community inspectors (Art. 14b); that the scheduling and planning of Community inspections shall be established by the Community in co-operation with the Agency (Art. 15), etc. All these provisions, which are in some respects detailed even further in the Subsidiary Arrangements, are now being implemented in a routine manner, which, overall, is satisfactory. There have been certain initial differences in interpretation of the precise meaning of some of the provisions, but in general such problems have been practically resolved.

The aim of avoiding, as far as possible, any unnecessary duplication, while at the same time allowing both inspection authorities to discharge their responsibilities, has been and is the guiding principle in the search for solutions to problems encountered in practice. A specific solution had to be found for a problem not fully realized at the conclusion of the Agreement, concerning inspections in facilities which handle significant amounts of materials of high strategic value, in forms requiring relatively short detection times. Application of the normal formulae for collaboration would have required an unreasonably high total inspection effort for the facilities in question and therefore the establishment of joint teams of inspectors from both organizations has been agreed upon provisionally for such cases. Such an arrangement was the more justified as normally in such facilities each organization would have had to send, even if safeguarding alone, more than one inspector to the job. In the joint teams, the inspectors work together as one single team, with common working papers and, as far as possible, those tasks which require only one inspector can be done by any member of the team, provided that each organization is given all the information required to draw its own independent conclusions.

Some special questions, concerning e.g. common use of instruments, common seals, installation of surveillance equipment, etc. were not always easily resolved and some of them will still be under discussion for some time, but considerable progress has been made, along with the development of a better knowledge and understanding of the other.partner's position and behaviour.

GENERAL EVALUATION

Some 200 facility attachments are currently in force for the seven non-nuclear weapon States of the European Community. Euratom also applies safeguards in the two weapon States, United Kingdom and France, and IAEA regularly receives from Euratom reports on civilian nuclear material in the UK, where, for designated facilities, IAEA inspections will also start soon. Collaboration in the field between Euratom and IAEA started three years ago and quite a lot of experience has been gained since. The results can be considered to be very satisfactory. The system brings together different specific capabilities and traditions of working from each side, and profits from the long experience of Euratom inspectors with the different facilities. The existence of this regional system reduces the inspection effort

the Agency would otherwise have to spend in the region, and therefore allows considerable savings for the Agency. It preserves the rights and obligations of the European Community in the field of safeguards; it also allows the Community, which concludes contracts with external suppliers and guarantees equal access to resources, to guarantee that the conditions concerning the use of the materials are complied with, through the operation of its safeguards system.

Some general reflections are useful in this context. First, a rather complex system such as this will only work if it has the full support of all its Member States. It has its origin in their political will to act together, and it is not only an expression of this will, but also an integrating factor in itself, especially through its connection with the supply aspect. Secondly, such a regional system as that of the Community contributes in itself to the development of a large, interconnected civilian nuclear industry in the region. It fosters political stability, not only concerning the relations between the Member States but also because such a region as a whole must have a general peaceful attitude. Thirdly, one must take accout of the fact that such a system would lose its credibility if the regional authority were to be considered, by the Member States, the operators or the IAEA, as a mere defender of obvious and short-sighted industrial or national interests and to be pushed into the role of an opponent to IAEA. In the case of Euratom, such an attitude would be in conflict with the responsibilities and obligations placed upon the Commission as an independent safeguards authority. Being founded on the principle of the Euratom Treaty and with personnel drawn from all the Member States, both non-nuclear weapon and nuclear weapon States, it is an authority of recognized integrity.

Whether such a system can be taken as a model for other regions depends therefore very much on the particular situation in the region. If there is in the region, as in the case of Euratom, a real transfer of national authority and sovereignty to the regional safeguards authority, and if there is inside the region a reasonably extensive nuclear market and trade, with a complete, or nearly complete fuel cycle, then real profit could be expected from such a regional system. There could, perhaps, also be an advantage for a similar system in the case of those large nuclear complexes or nuclear centres foreseen for the future as servicing a group of countries.

In the case of the European Community and IAEA there is without doubt an exceptionally broad coincidence of objectives and interests between both safeguards authorities, which must present solid ground for an efficient and mutually trusting co-operation.