

APPENDIX IX-D  
EURATOM AND REGIONAL SAFEGUARDS

by

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EURATOM AND REGIONAL SAFEGUARDSA. The Treaty of Rome.

The Treaty of Rome, establishing the European Atomic Energy Community, was signed on the 25th of March, 1957 by Representatives of the Governments of Belgium, Germany, France, Italy, Luxembourg, and the Netherlands. Since that time, the European Community has been enlarged by the accession of three new Member States; the United Kingdom, Denmark, and Ireland. With the signing of the Treaty, and the simultaneous signing of the Treaty establishing the European Economic Community, the first multi-national safeguards system was created. This Treaty delegated to the Community and to its executive body the Commission, the responsibility of controlling the nuclear materials within their territories. With this act, the Member States relinquished real and significant aspects of their power and national sovereignty to the Community. The history of EURATOM has been summarized by Warren H. Donnelly, (35) in a report prepared for the Subcommittee On National Security Policy and Scientific Developments of the Committee on Foreign Affairs, U. S. House of Representatives.

The safeguard objectives, rights, and responsibilities of EURATOM are contained in Chapter 8, Safeguards, Articles 77 through 85 of the Treaty, (36). These articles are reproduced in full in Annex O.

"in accordance with the provisions of this Chapter that the Commission shall satisfy itself that, in the territories of the Member States (a) ores, source materials and special fissile materials are not diverted from their intended use as declared by the users;"

The provision of this Article are of particular interest for two reasons. First, safeguards in the EURATOM systems begins with the ore as contrasted with IAEA safeguards which under Information Circular/153, para. 33 states:

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"safeguards shall not apply thereunder to materials in mining or ore processing activities."

Second, the phrase,

"as declared by the users",

is in marked contrast to the undertaking in the NPT or in INFCIRC/153, that "such material is not diverted to nuclear weapons or other nuclear explosive devices," or the Statute's phrase not "to further any military purpose." This formulation apparently reflects the French insistence that the EURATOM Treaty must not restrict her national atomic program nor her right to produce and use atomic weapons for national security.

The design review provisions of the IAEA Safeguards Systems find their equivalent in Article 78 which provides that "Anyone setting up or operating an installation for the production, separation or other use of source material or special fissile material or for the processing or radiating nuclear fuel shall declare to the Commission the basic technical characteristics of the installation to the extent that knowledge of these characteristics is necessary for the attainment of the objective set out in Article 77." Thus, although the EURATOM Treaty does not prevent a State from constructing facilities to manufacture nuclear weapons it does prevent facilities whose declared functions are in the peaceful uses of atomic energy from being used for weapons purposes. This aspect of the Treaty has been strengthened by the ratification of the NPT by the EURATOM countries with the exception of France.

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**The records provisions of the EURATOM Treaty are** covered in Article 79. Article 80 contains a provision, analogous to Article XI(5) of the Statute that specifies "the Commission may require that any excess special fissile material recovered or obtained as by-products and not actually being used or ready for use shall be deposited with the Agency or in other stores which are or can be supervised by the Commission". The rights and privileges of the Commission to send inspectors to the territories of the member states are covered in Article 81, and this Article contains the important right of the inspectors who "shall at all times have access to all places and data and all persons who by reason of their occupation deal with materials, equipment or installation subject to the safeguards provided for in this chapter."

These very broad inspection rights are in fact exercised by the EURATOM inspectors. For example, it is reported that in recent EURATOM inspections of the URENCO Centrifuge Enrichment Plant in Almelo, the Netherlands, the centrifuge cascade itself has been included as part of inspection. Under the procedures which the IAEA expects to use for enrichment plant safeguards, its inspectors would not have access to the cascade area because of the commercial sensitivity and weapons potential of the technology.

The actions which the Commission may take in the event of non-compliance with the provisions of the Treaty, are outlined in Articles 82 and 83. These actions include in Article 83(1) "(c) the placing of the undertaking for a period not exceeding four months under the administration of a person or board appointed by **common accord of the commission of the state having jurisdiction over the** undertaking; and (d) total or partial withdrawal of source materials for special fissile materials." Under Article 83(4) of the Treaty "the member states shall insure that sanctions are enforced and where necessary that the infringements are remedied by those committing them.

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B. REGULATION NO. 7 AND NO. 8

Regulation No. 7 which outlines the procedures for completing the declarations laid down in Article 78 of the Treaty was approved by the Commission in Brussels on the 18th of February, 1959. The Regulation and its Annex specify the Design Information which should be provided for the Commission in what is the equivalent of the IAEA Safeguards System's design review questionnaire. It requires a brief description and general plan of the installation, a description of the technical processes employed, a description of the methods used in the installation for measuring and checking the quantity and quality of materials which are subject to safeguards and information on the composition and nature of the nuclear production of the nuclear materials used or produced in the facility as well as its annual capacity.

Regulation No. 8 approved on the 12th of March 1959 defines the nature and extent of the requirements referred to in Article 79 of the Treaty. This Regulation specified the records and reports that the Commission would require in order to determine the quantity and nature of the materials subject to safeguards and in actual existence in the community, the place where they are located and the transfers in which they are involved. This Regulation is analogous to the Sections on Records and Reports of the IAEA Safeguards System. The facility operator has a relatively large degree of freedom in the manner the records are kept. The records, however, must contain all of the necessary data which are or may be required for the material accountancy of all source or special fissionable material and the operator must be able to substantiate the reports which are made. The records must be accessible to the inspector. Each facility must report separately for each material and for each "stage of production" such as the concentration of ores, chemical reprocessing of concentrates, production of hexafluoride

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enrichment, spent fuel reprocessing, etc. In general, reports are required monthly and indicate all inventory changes of the facility and include an inventory statement of all of **the materials present in the last day of the month.**

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c. THE EURATOM SAFEGUARD SYSTEM

In 1960 approximately one hundred nuclear facilities within the Community were covered by EURATOM Safeguards. This number had grown to approximately four hundred by 1975. Table IV and Table V are taken from the review article by Schleicher, (37) which describes the Euratom Safeguards System and which summarizes both the number of installations and the amount of nuclear material under EURATOM control.

TABLE IV  
TOTAL NUMBER OF INSTALLATIONS IN CATEGORIES  
IN JANUARY 1975

Category	Number Safeguarded
Research laboratories	87
Mines	28
Mineral concentration	8
Mineral refining	6
Enriched uranium production	7
Fuel preparation	8
Fuel production	27
Reprocessing	13
Research reactors	72
Critical assemblies)	
Subcritical assemblies)	47
Power reactors	65
Stores	20

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TABLE  
 AMOUNTS OF NUCLEAR MATERIAL UNDER EURATOM CONTROL  
 IN JANUARY 1975

Type	Quantity (Kg element)
Plutonium	14 844
Enriched uranium	3 529 985
Natural uranium	32 744 760
Depleted uranium	6 467 924
Thorium	3 038 844

The rate of growth of the EURATOM system is expected to increase with twenty-five new nuclear power stations under construction, the addition of major new facilities for uranium enrichment planned and started, with the implementation of United Reprocessors, the European reprocessing cartel, well under way.

At the present time the Safeguards Directorate of the Commission, which is located Luxembourg, has a staff of approximately 110 people. The staff, as is the custom with all European Community Organizations, is drawn from all nine Member States. Because of the confidential nature of safeguards, each staff member is cleared for access to secret material. The Directorate is subdivided into three divisions, each Division being responsible for the inspection of certain specific types of facilities. A special service group provides computer support and is responsible for processing the monthly material accountancy reports. Of the 60 inspectors on the EURATOM staff



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approximately 50 participate routinely in inspections. Roughly one-third are university graduates. It is the EURATOM practice that the inspectors specialize in certain types of installation and are responsible for these installations wherever they may be found within the European community. The inspector proposes the inspection methods to be used for specific facilities, examines the records and reports of the facility, reviews the differences between the operators declarations and his findings and makes the first recommendation on the admissibility of losses and wastes reported by the facility operator. The final decision on this latter matter is made at the level of the Directorate.

The EURATOM data processing system currently handles approximately 20,000 entry lines each month from the 400 installations under safeguards and has recently been described by Schmitt and Kschwandt (38). The accounting system is based on batch processing in the computer sense rather than the material balance area concept used by the IAEA. This basic difference has required major reprogramming efforts on the part of the EURATOM staff in order to meet the requirements of INFCIRC/153. The first test-runs of the revised monthly reports using magnetic tapes have been processed in Vienna without major difficulties.

The preliminary budget for EURATOM safeguards for the year 1977 is estimated at approximately 732,000 units of account(u.a. ) or, approximately \$800,000. if the conversion factor of 1.1 is used for the u.a. A copy of the preliminary draft of the General Budget for expenditures relating to safeguards is reproduced in Annex P.

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1), IAEA/EURATOM SAFEGUARDS AGREEMENT.

In fulfillment of their obligation under Article 3 of the Non-Proliferation Treaty the representatives of the seven non-nuclear weapons states of the European Community and, the representatives for the European Atomic Energy Community, and for the International Atomic Energy Agency signed on April 5, 1973 the "TEXT OF AN AGREEMENT BETWEEN THE EUROPEAN ATOMIC ENERGY COMMUNITY AND THE AGENCY IN CONNECTION WITH THE TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS." This Agreement incorporates the principles and in many instances the phraseology used in drafting INFCIRC/153. There are, however, some significant differences. The most important issues concern the nature of the inspection activities which the IAEA may perform during its verification of EURATOM safeguards and the question of access and inspection effort.

Article 3(b) contains the sentence, "... The Agency's verification shall include, inter alia, independent measurements and observations conducted by the Agency in accordance with the procedures specified in this Agreement."

In the Protocol to the Agreement which is reproduced in Annex A, Article 14, the question of the Agency's activities are described in *more* detail. For example, it is provided in paragraph (a) that

"the Agency inspections shall be carried out simultaneously with the inspection activities of the Community. Agency inspectors shall be present during the performance of certain of the Community inspections. <sup>11</sup>

Paragraph (b) provides that

"whenever the Agency can achieve the purposes of its routine inspections set out in the Agreement, the Agency inspectors shall implement the provisions of Articles 74 and 75 of the Agreement through the observation of the inspection activities of the Community inspectors, provided, however, that:

"(i) With respect to inspection activities of Agency inspectors to be implemented other than through the observation of the inspection activities of the Community inspectors, which can be foreseen, these shall be specified in the Subsidiary Arrangements; and

"(ii) In the course of an inspection, Agency inspectors may carry out inspection activities other than through the observation of the inspection activities of the Community inspectors where they find this to be essential and urgent. If the Agency could not otherwise achieve the purposes of its routine inspections and this was unforeseeable."

The Agency's position with respect to the interpretation of the word "observation" is presented in the introduction Chapter 3, of the IAEA Safeguards Technical Manual (28, op. cit.).

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"INTRODUCTION

"3.1 The IAEA safeguards system must enable the IAEA to verify that a State has complied with its undertaking as specified in the relevant safeguards agreement. The safeguards responsibilities and rights of the IAEA can not, therefore, be delegated to the State or to any organization to which the State has delegated the State's responsibilities. The IAEA system has been conceived to ensure the timely detection of diversion that might be attempted by the wide range of strategies described in Chapter 2. For these reasons the IAEA must verify the completeness, formal correctness and validity of the information (including all records and reports) made available by the State, regardless of the nature or level of the verification activities carried out by the State.

The important matters at issue between the IAEA and EURATOM concern the interpretation of the word 'Observation". In resolving this matter it will be necessary to consider the Agency's statutory requirements as well as the need to prevent unnecessary duplication of effort, unnecessarily high costs for safeguards, inspections, and the preservation of the EURATOM Safeguards System itself. In this, as in other crucial questions related to Safeguards, the attitudes of the parties involved is of major importance and a solution to the problem can be found if it is the desire of all sides to do so.

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E. THE NEW REGULATION

On September 22, 1976 the Commission of the European communities published a new regulation concerning the application of the provisions on EURATOM safeguards (6, op. cit.). The new Regulation has EURATOM Treaty Articles 77, 78, 79 and 81 as its legal basis. It was prepared in accordance with the IAEA EURATOM Safeguards Agreement concluded on the 5th of April 1973. The Commission used this occasion to define new procedures to be used in accordance with the provisions of Chapter VII of the Treaty of Rome, to make the necessary changes and modifications in EURATOM procedures so that its reports would be compatible with IAEA requirements, and to modify the EURATOM nuclear materials accounting procedures so that they would be in accordance with the requirement of the IAEA.

The first part of the Regulation concerns the declaration and verification of the fundamental technical characteristics of installations for the production, separation or utilization of source or special fissile materials or the reprocessing of irradiated nuclear fuels. The declaration involves notification of the installations programmed. The second part of the Regulation specifies the accounting system for nuclear materials. The system involves accounting and operating records and includes information on the quantities, nature, form and composition of the materials. The third part regulates imports and exports of source and special fissile materials. The fourth part contains specific provisions applicable to ore producers, carriers and intermediaries.

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The fifth part, under Article 35, lays down specific provisions applicable in the territories of the nuclear- capon Member States. It is stipulated that the Regulation shall not be applicable to installations or materials allocated to defense by a Member State which is not a party to the Verification Agreement. The Regulation is nevertheless applicable, in a manner to be agreed between Commission and Member State, to installations and materials which are only temporarily or partially assigned to a defense requirements.

Schleicher, (37, op. cit.) in discussing the implementation of the IAEA/EURATOM Safeguards Agreement contrasts what he describes as the flexibility of the EURATOM System with the much more formal character of the IAEA System. Concern is expressed for the additional safeguards burden which will result from the IAEA requirements for verification of physical inventories. The possibility is specifically mentioned of the need to shut-down large nuclear facilities in order to take such inventories and the considerable expenses which such a shut-down would entail. Coupled with this inventory verification problem in Schleicher's view is the additional burden resulting from the requirement by the Agency for relatively large numbers of destructive analyses for uranium and plutonium. These analytical requirements would significantly increase the cost of safeguards. As has been mentioned, the major differences in the accounting and reporting procedures as well as the data analysis methods used by the two safeguards system reflect fundamental differences in safeguards philosophy. Once again these difficult and practical problems can be resolved if both parties are determined to work for a mutually acceptable solution.

The Director General of the IAEA reported in his speech to the General Conference that:

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"At our General Conference in Mexico in 1972, I was pleased to announce that the Board and the Council of Ministers of the European Communities had approved the NPT Agreement between the Agency and EURATOM and the States concerned, I had hoped to be able to inform the General Conference at this session that the Agreement had entered into force, **but** I am, unfortunately, not yet able to do so. I must draw attention to the fact that even under the most liberal interpretation, the time limit set by NPT for the entry into force of that Agreement will expire early in November this year. I do hope that I shall be able to inform the General Assembly of the United Nations later this year that the ratification of NPT by the countries concerned, which was met with so much gratification in May last year, has been consummated by the entry-into-force within the statutory time limit of the IAEA/EURATOM Safeguards Agreement."

At this writing, the statutory time limit has passed and the IAEA/EURATOM Safeguards Agreement is not in force.