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DIRECTORATE OF INTELLIGENCE

Intelligence Memorandum

The IAEA Enters a New Era

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142

31 March 1971
No. 1277/71

CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
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Introduction

A year ago this month when the nuclear Nonproliferation Treaty (NPT) entered into force, the responsibilities of the International Atomic Energy Agency (IAEA) were greatly increased. Foremost among the agency's new tasks will be to make sure that fissionable material in the nonnuclear-weapon states (NNWS) is not diverted from peaceful applications and that safeguards are applied to international transfers of fissionable material. This memorandum will briefly examine the history and current status of the IAEA and analyze the functions it performs for the international community, with particular emphasis on implementation of safeguards.

Note: This memorandum was prepared by the Office of Current Intelligence and coordinated within CIA.

Origins and Functions of the IAEA

1. The IAEA--an idea first proposed in the 1953 US Atoms for Peace initiative--was established in July 1957 after the necessary 18 countries had ratified the statute outlining its structure and functions. The statute, which was developed under the auspices of a special UN conference in 1956, states that the primary objective of the IAEA is "to accelerate and enlarge the contribution of atomic energy to peace, health, and prosperity throughout the world." But the agency is also charged with ensuring, "so far as it is able, that assistance provided by it or at its request or under its supervision or control is not used in such a way as to further any military purpose."

2. The two key functions that the IAEA will have in the future are to administer the safeguards to verify compliance with the NPT and to disseminate the benefits of peaceful nuclear explosion devices (PNEDs) to NNWS adhering to the NPT. The NPT safeguards program will be built upon a system of inspection and accounting that the IAEA has been developing for some time. This system received a major boost when the US decided to transfer to the agency the responsibility for applying safeguards to nuclear fuels that Washington provides to nations under bilateral agreements for cooperation in the peaceful uses of atomic energy. Since 1964 the IAEA has also been permitted to inspect a few US atomic power stations. The Soviet Union has made no comparable gestures, except for a 1970 proposal--basically designed to upgrade Pankow's status in the international community--that one of its shipments of slightly enriched uranium to East Germany be placed under IAEA safeguards.* East Germany is not a member of the UN or any UN-related agency.

Moscow did sign a contract recently with the IAEA that will permit agency personnel to perform research, though not safeguards functions, at one Soviet facility.

3. The IAEA's inspection program has in general developed smoothly, although the Japanese late last year complained that IAEA personnel seemed to be looking into matters not related to diversion potential. The system is based on the principle of physical accounting. For example, the US notifies the agency that it has sent country X so much fissionable material at a particular level of enrichment, and country X acknowledges receipt of the shipment to the IAEA. Then an IAEA inspector examines the nuclear facilities in country X to determine whether, on the basis of reactor outputs, reactor operating schedules, and unused quantities, any diversion of fissionable material could have occurred. Precise levels of inspection vary with the complexity of the facility and the amount of material to be surveyed. Plants for the chemical separation of nuclear fuels are especially difficult to inspect.

4. The IAEA will probably spend $12.7 million during 1972 on nonsafeguards functions. Among the steps the IAEA has taken to promote international cooperation in the peaceful uses of nuclear energy are the operation of its own radioisotope laboratory and institute of theoretical physics. Over the years the agency has also provided a valuable forum for consultation for its 103 members on such concerns as the siting of nuclear power plants, the storage and transport of radioactive materials, and cost comparisons of various nuclear fuels and technological processes. The rapidly growing international demand for nuclear fuels to meet the energy crisis is likely to enhance the importance of these aspects of the agency's work.

5. Representatives of all member states of the IAEA convene annually in a general conference to "make recommendations" to the 26-nation Board of Governors, which is empowered to set policy for the agency. Board membership is based on broad geographic representation, with seven seats currently reserved on a permanent basis to those states "most advanced in the technology of atomic energy including the production of source materials." Day-to-day execution of the board's decisions rests with the

agency's director-general, presently Sigvard Eklund of Sweden. The personnel complement has mushroomed in recent years, not only in anticipation of the increased safeguards duties, but also to carry out the numerous IAEA technical assistance projects.

6. The US has been the chief promoter of the IAEA since it was founded, as well as its principal financial backer. By using the agency to disseminate information on many facets of American nuclear technology, the US has built up among the NNWS increasing confidence in the IAEA. The positive attitude on the part of these countries toward the agency was a factor of some importance in the decision to designate it the NPT's enforcement agency. In recent months the Soviets have been pressing for significant increases in their complement on the staff, a reflection of Moscow's evaluation of the future role of the IAEA. Western-oriented governments are moving only slightly less rapidly toward greater involvement, and for the same reason.

The NPT

7. As a result of the initial arms control breakthrough achieved by the Limited Test Ban Treaty of 1963 and the continued threat of nuclear weapons proliferation posed by the rapid growth in the amount of fissionable material held by the NNWS, interest grew in the mid-1960s in a treaty that would deal directly with this threat. Various schemes were broached, but little progress was made until 1965 when a US proposal served to focus attention on the IAEA as a possible enforcement agency. Working out the precise terminology of a treaty took several years of delicate negotiation in various forums--especially at the Geneva disarmament talks. The result was the NPT, which was finally opened for signature on 1 July 1968.

8. Much of the delay in concluding the NPT was caused by the problems of safeguards--many of which stemmed from the unique position of the member countries of the European Atomic Energy Community (EURATOM). Having established as part of the movement

toward European union a functioning inspection system that was generally recognized to be effective, the EURATOM countries were reluctant to relinquish it. In particular, the five members without nuclear weapons argued that it would be politically easier for them to accept the NPT if the nuclear member France, which had no intention of signing the treaty, remained subject to the international inspection provided by the EURATOM system. In the end, the US accepted this argument and persuaded the USSR also to agree to treaty language allowing for the possibility of a special arrangement between EURATOM and the IAEA.

9. Another problem was the fear of those NNWS with advanced programs in peaceful nuclear technology, such as West Germany and Japan, that safeguards would be used for commercial espionage by the nuclear-weapons states, which would not be subject to inspection under an NPT. The US and UK--but not the Soviets--somewhat mollified this concern in 1967 by proposing to open certain of their installations to international inspection.

10. Crucial to implementation of the IAEA system will be a general worldwide adherence to the NPT. The three nuclear-weapon co-sponsors of the treaty--the US, the UK, and the USSR--have ratified the document as have 62 NNWS. An additional 35 NNWS have signed the NPT, but have not yet ratified. The most important nations in this category are Japan and five members of EURATOM--West Germany, Italy, the Netherlands, Belgium, and Luxembourg. Treaty holdouts considered to possess a high potential for producing nuclear explosives include Israel and India; less concern has been expressed over the refusal of Pakistan, South Africa, Argentina, Brazil, and Chile to sign. France and Communist China, which traditionally do not adhere to arms control measures, have also declined to sign the treaty. Paris, however, has indicated it will accept IAEA safeguards on its exports of nuclear materials to NPT adherents and, if required by the shipping state, on its imports as well.

11. Article 3 of the NPT stipulates that NNWS adhering to the treaty are to accept safeguards under agreements to be negotiated with the IAEA. All international transfers of fissionable material by NPT adherents are also to be subject to such safeguards. The article further provides that the inspection system must "avoid hampering the economic or technological development of the Parties or international cooperation in the field of peaceful nuclear activities." Negotiations were scheduled to begin last September--180 days after the NPT entered into force on 5 March 1970--with agreements to be reached within the subsequent 18-month period. The agency itself, however, has not been anxious to open negotiations, although some 26 NNWS, including East Germany, are waiting to begin.

The Future IAEA Safeguards Program

12. The IAEA has been embarrassed by the slow pace at which its own negotiating position has been delineated. The IAEA's Board of Governors, the policy-making arm of the organization, last year established a special committee on safeguards to develop guidelines on the issues. The committee has now completed its work, having apparently resolved the three problems of primary concern: the frequency of inspections, the intensity or depth of the verification effort, and the financing of the safeguards program. The board is expected to approve the committee's recommendations at a special meeting next month, and the IAEA staff will probably begin to negotiate with the NNWS adhering to the NPT in earnest shortly thereafter.

13. The agreements on the frequency and intensity of inspections reached some months ago were achieved only after considerable discussion in committee. The US attained its basic objective when it secured for the IAEA the right to perform inspections on 24-hour notice and on a continuous basis wherever necessary to ensure knowledge of how fissionable material was being used. IAEA personnel may even be resident in an inspected country, and random sampling at several points in the processing

of the nuclear fuels is envisaged. Japan and West Germany would have preferred a longer notification period, but were mollified by explicit statements that the IAEA would have no role in the design of nuclear installations and that inspectors are to "make every effort to minimize any practical difficulties for facility operators and the state."

14. How to finance the new program was the last issue to be decided by the committee, and it seemed likely for a time to unravel the delicate agreements previously reached on verification. The magnitude of the future safeguards efforts staggered a number of IAEA members, who feared that such costs would be at the expense of other aspects of the IAEA's program. Preliminary planning for the 1972 budget tends to confirm the validity of these concerns. The budget for the safeguards program, including inspections of US and UK facilities probably will rise from $1.8 million in 1971 to $5.7 million in 1975.

15. The less developed countries (LDCs) and France were reluctant to provide financial support of a program that, so they maintained, would not benefit them. Intense lobbying, much of it by the US, finally persuaded the LDCs to recognize the importance of this international undertaking, but they insisted that they not have to pay more than 16.9 percent of the safeguards budget each year until 1975, when the financing arrangement would be reopened for review. France declined to adhere to the agreement on financing. US legislation prevents the US from contributing more than one third of the amount needed to cover inspection expenses. Although this reservation is not stated in the financing agreement, projections indicate that the US assessment will not approach that level before the mid-1970s.

16. The upshot is a certain feeling among the more advanced NNWS--in which over 50 percent of the international inspections are likely to occur--that they will be squeezed to pay an unfair share of the accelerating safeguards costs because of the ceilings

put on how much the smallest and largest contributors will have to pay. Board approval of the financing arrangement next month is a foregone conclusion, but the issue could be revived by NPT opponents during the treaty ratification campaigns in such sensitive countries as Japan and West Germany. The provision for review in 1975 is another negative consideration, although the safeguards system may have developed enough momentum by then to thwart any efforts to dismantle it.

EURATOM

17. With the IAEA now set to begin negotiating the safeguards arrangements required by the NPT, the problems associated with EURATOM have once more come to the fore. As noted before, the language in Article 3 of the treaty, which permits the NNWS to negotiate these arrangements with the IAEA "either individually or together with other States," was specifically intended to allow the continuation of EURATOM's own system and to permit EURATOM as an entity to bargain with the IAEA over the latter's role. For many months, however, the EURATOM Commission--which would represent the European Community--has been unable to obtain from the member states the necessary mandate to open these negotiations.

18. The lengthy impasse is attributable entirely to Paris, which has argued that any IAEA role in the administration of EURATOM's safeguards would be in violation of the EURATOM treaty. In fact, France hopes to extract as the price for its agreement amendments to the treaty that would exempt the French civil nuclear program from inspection even by EURATOM. These maneuvers have rankled the other Community members, especially the Brandt government, which has been criticized by the opposition party for having failed to obtain commitments from the French on their attitude before signing the NPT. Some Bonn officials even claim that there may not be a majority in the Bundestag for ratification unless German industry is assured that safeguards arrangements give no commercial advantage to the French.

19. It is far from clear how these differences can be reconciled. The latest word from Bonn is that the Foreign Office may try to persuade the Brandt cabinet to accept the French demands as a "reality" that cannot be overcome. The science and economic ministries would certainly prove hard to convince, however. An alternative tactic, which has already been broached by the Dutch, would have the Five negotiate with the IAEA without French approval. No one has yet considered in detail what effect either approach would have on the viability of EURATOM, and it appears unlikely that any solution is possible in the immediate future.

20. Meanwhile, Italy has proposed to upgrade EURATOM's influence in the IAEA by amending the agency's statute to give it and West Germany permanent seats on the Board of Governors. Over strenuous Soviet objections the IAEA general conference last September agreed to recommend the amendment to the IAEA membership. Ratification of this change is unlikely to occur, however, before the IAEA-EURATOM agreement on safeguards is consummated.

PNEDs

21. Article 5 of the NPT provides that NNWS adhering to the treaty will be able to obtain the benefits of peaceful applications of nuclear explosions "through an appropriate international body." Among the presumed future uses of such explosions are canal excavations, the extinguishing of oil-well fires, and the creation of underground domes for storage of natural gas. The feasibility of establishing a special agency to handle PNEDs has been given some consideration, but the general consensus is that the IAEA must be charged with the task--presumably by contracting for them.

22. At present the utilization of PNEDs is basically experimental. It is now in the hands of the superpowers, where it may well remain because under terms of the NPT an "explosion" is considered equivalent to the nuclear weapons that signatory NNWS have agreed to foreswear. The superpowers

have held productive bilateral exchanges on PNEDs, but little progress has so far been made toward determining the role the IAEA will have. International pressure to move ahead will probably soon increase in view of the general feeling among the NNWS that in agreeing to the NPT it is they who have made the major sacrifices and that the superpowers should therefore honor their own comparatively modest obligations.

Conclusions

23. The "new era" now opening up for the IAEA may well be an important one for the international community. Although the Antarctic Treaty of 1959 was an initial step, the verification program required by the NPT is the first significant attempt to enforce an arms control agreement by on-site inspection. With the postwar disarmament negotiations so far achieving only modest results, largely because of the intractable problems of enforcement, institution by the IAEA of an effective safeguards system of general applicability will, it is hoped, prove to be a precedent-setting experiment.

24. There is, moreover, a growing awareness, particularly in Europe, of a worldwide energy crisis, which is exacerbated by the uncertainty over future supplies of oil. West European states are consequently moving to build up their own uranium enrichment capabilities. Implementation of the IAEA verification program can go far toward removing any international disquiet over this trend. The Soviets, for example, are most anxious to see the agency's inspection procedures applied to the British - Dutch - West German project to produce enriched uranium by the centrifuge method. An adequate policing mechanism will in general promote greater international cooperation in nuclear fuel supply and alleviate some of the strain over the energy crisis. By encouraging commercial development under international regulatory machinery, this IAEA endeavor in turn should serve as a precedent for other areas, most notably in utilizing the manifold natural resources on and below the ocean floor.

25. There remains the chance that the delicate accords achieved in the safeguards committee could be unraveled, with the attendant risk that this might jeopardize adherence to the NPT by key countries. If Paris succeeds in loosening EURATOM safeguards on French civil nuclear facilities, German sensitivity to the inspection and financing arrangements the IAEA might require could make Bundestag ratification of the NPT very difficult indeed. Japan's attitude toward ratification would then also be in question; Tokyo has already said it will neither complete negotiations with the IAEA nor ratify the NPT until the EURATOM states have done so.

26. Much of the burden in preventing disillusion with the contemplated arrangements will rest with the NPT's nuclear-power sponsors. The US and the UK, in standing by their offers to accept inspection, have significantly enhanced the prospects for treaty ratification and safeguards negotiations in the key NNWS. The enthusiasm of these states and the substantial nonaligned-LDC bloc for the NPT can be encouraged if the superpowers are able to show substantial progress in meeting their commitment under Article 6 to negotiate "effective measures relating to cessation of the nuclear arms race at an early date."