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SUMMARY OF GAO TESTIMONY
BEFORE THE
COMMITTEE ON FOREIGN RELATIONS
U.S. SENATE
ON THE IMPLEMENTATION OF
INTERNATIONAL NUCLEAR SAFEGUARDS
DECEMBER 2, 1981

Substantial improvements are required if the International Atomic Energy Agency (IAEA) is to fulfill its increasing safeguards responsibilities. The number of facilities and the amount of nuclear material under safeguards has increased rapidly in recent years. Many of the nuclear facilities now subject to safeguards are larger and more complex than those originally under safeguards. To meet its responsibilities, IAEA needs more technical, political, and financial support from its members.

The extent to which present safeguards are effective is largely a matter of judgment. It would be difficult to prove if or to what degree safeguards have achieved their desired effect. Nevertheless, it is clear that the credibility of international safeguards as a deterrent to proliferation depends upon the probability of prompt detection. In many cases this probability of detection needs to be increased.

Several factors hinder IAEA in applying safeguards including, (1) a limited number of inspectors, (2) a lack of suitable techniques and equipment, (3) inadequate nuclear material accounting practices by some nations, and (4) political constraints. Moreover, IAEA is experiencing financial constraints in performing its increasing safeguards responsibilities. It seems reasonable to conclude that IAEA's safeguards effectiveness has been adversely influenced by these problems.

The United States and others have been working to strengthen IAEA safeguards. We found that intensified U.S. efforts to upgrade IAEA safeguards have had some positive results, but they have not yet had as significant an impact as had been hoped and that IAEA safeguards need further improvement.



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UNITED STATES GENERAL ACCOUNTING OFFICE
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STATEMENT OF
HARRY R. FINLEY
ASSOCIATE DIRECTOR, INTERNATIONAL DIVISION
U.S. GENERAL ACCOUNTING OFFICE
BEFORE THE
COMMITTEE ON FOREIGN RELATIONS
U.S. SENATE
ON
~~THE~~ IMPLEMENTATION OF
INTERNATIONAL NUCLEAR SAFEGUARDS

Mr. Chairman and Members of the Committee

We are pleased to discuss with you our review of the nuclear safeguards applied by the International Atomic Energy Agency (IAEA) and the intensified U.S. effort to upgrade them. In our classified report issued earlier this year we presented a detailed assessment of IAEA safeguards and the intensified U.S. program to improve them.

It has long been recognized that both nuclear energy and nuclear weapons depend, in large measure, on the same technology and use much the same type of material and production facilities. To detect any diversion of U.S. nuclear material supplied abroad which might be used for other than peaceful purposes, the United States initially established its own bilateral safeguards system. However, with the inception of IAEA and the development of other nuclear suppliers, the United States phased out its bilateral program in favor of international safeguards.

IAEA was created in 1957 to accelerate and enlarge the contribution of nuclear energy to peace, health, and prosperity throughout the world without furthering any military purpose. One of its responsibilities is to administer an international safeguards system, but, as reflected in its budget, applying safeguards is not its primary function. (Only about 24 percent of IAEA's total resources are expected to be used for safeguards in 1982).

EFFECTIVENESS OF SAFEGUARDS

The desired effects of IAEA safeguards are to (1) deter, through prompt detection, national diversions of safeguarded nuclear material, (2) place responsibility on the host country for instituting domestic programs to guard against subnational diversions (such as individuals or groups acting contrary to government policy), (3) reduce specific international tensions, by providing a degree of assurance among countries,

especially hostile neighbors, that the safeguarded country is not developing nuclear explosive devices, and (4) insure that international nuclear commerce can be freely conducted without contributing to insecurity and tension among nations. IAEA hopes to apply safeguards with a high degree of reliability and assurance, within acceptable cost limits, and without unduly interfering with commercial operations.

The extent to which IAEA safeguards are considered effective is largely a matter of judgment. It would be difficult to prove whether or to what degree safeguards have achieved their desired effect. Effectiveness obviously involves many subtle factors such as the inhibiting effect that the mere application of IAEA safeguards might have on a nation harboring thoughts of a nuclear diversion. Nevertheless, it is clear that the credibility of international safeguards is basically dependent upon the probability of prompt detection. In many cases this probability of prompt detection needs to be increased.

We believe substantial improvements are required if the IAEA is to adequately fulfill its increasing safeguards responsibilities. The number of facilities and the amount of nuclear material under safeguards has increased rapidly in recent years. Many of the nuclear facilities now subject to safeguards are larger and more complex than those originally under safeguards. To meet its responsibilities, IAEA needs more technical, political, and budgetary support from its members.

International safeguards are a cornerstone of the non-proliferation regime. In essence, the United States and other nations around the world have placed great trust and reliance in the IAEA to deter would-be diverters and provide timely warning if safeguarded material is diverted. Before discussing the status of IAEA safeguards, it may be useful to point out the following facts about the scope of international safeguards.

- The vast majority of nuclear facilities and material in non-nuclear weapons nations is subject to IAEA safeguards. However, membership in IAEA does not obligate a country to accept safeguards on all its facilities. For example, India, Israel, and South Africa have facilities not subject to IAEA safeguards. Pakistan is developing facilities which apparently will not be safeguarded.
- Nuclear facilities of nuclear weapons countries are not subject to IAEA safeguards except on a voluntary basis. Of the nuclear weapons nations, the United Kingdom, France, and the United States have agreed to place their facilities--except those of direct national security significance--under IAEA safeguards. However, nuclear facilities in the Soviet Union and the People's Republic of China are not under safeguards. China is not even a member of IAEA.

- IAEA inspectors do not have unlimited access on their inspections. They have no authority to pursue or recover diverted material. IAEA safeguards are not designed or intended to search for undeclared or clandestine facilities.
- If an IAEA inspector cannot verify the non-diversion of nuclear material, the country must be given a "reasonable time" to take corrective action, before procedures for non-compliance may be initiated. Such procedures may include notification of member nations and the United Nations as well as the recall of IAEA-sponsored material. Although IAEA has never used these procedures, it seems clear that by the time sanctions could be applied, the country might have had sufficient time to complete its weapons development.

STATUS OF SAFEGUARDS

IAEA has reported that it has not detected any discrepancy which would indicate the diversion of a significant amount of safeguarded nuclear material, and has concluded that all such material remains in peaceful nuclear activities or is otherwise adequately accounted for. However, the degree of confidence that can be associated with current IAEA safeguards depends on such things as the amount, scope, and nature of the inspection effort.

International safeguards have reached different degrees of development for different types of facilities, in part, because IAEA experience in safeguarding certain types is considerably

greater than for others. For example, IAEA has experience in safeguarding thermal power reactors (particularly light water reactors), but limited experience in safeguarding fast breeder reactors. Also, IAEA has experience in safeguarding certain bulk handling facilities--conversion and fabrication plants--but limited experience in applying safeguards to reprocessing and enrichment plants. Such plants are key to the proliferation issue because they provide direct access to weapons-usable material. The reason why IAEA has had limited experience in safeguarding certain facilities is that in general they are few in number and located primarily in nuclear weapons nations which have not been required under the Nuclear Non-Proliferation Treaty to place civil nuclear facilities under IAEA safeguards.

Several factors hinder IAEA in applying safeguards including (1) a limited number of inspectors, (2) a lack of suitable techniques and equipment, (3) inadequate nuclear material accounting practices by some nations, and (4) political constraints. Moreover, IAEA is experiencing financial constraints in performing its increasing safeguards responsibilities. It seems reasonable to conclude that IAEA's safeguards effectiveness has been adversely influenced by these problems.

IAEA has an obligation under its safeguards agreements to conduct inspections. To fulfill its safeguards responsibilities, IAEA must have the necessary manpower to inspect, verify, and insure that a diversion of peaceful nuclear material has not taken place. However, the number of IAEA inspectors has not kept pace with its rapidly growing safeguards responsibilities.

The lack of suitable safeguards equipment is a primary reason why quantitative verifications in many cases cannot be adequately made. A substantial amount of material is in a form that is currently unmeasurable. While improvements have been made in recent years in the equipment to verify nuclear materials quantitatively, U.S. officials recently concluded that more reliable and suitable measurement equipment was needed by inspectors. In addition, containment and surveillance systems are not reliable for assuring the integrity of material control and accountability systems.

A nation is obligated to provide IAEA with accounting records and reports for all its nuclear material subject to safeguards. IAEA officials have repeatedly indicated a need for some nations to improve the quality of the nuclear material accountability information. To help alleviate these difficulties, the United States has provided training to officials of other nations in implementing national systems for the accounting and control of nuclear material.

Effective safeguards depend in large measure on the intent and cooperation of the host nation. In some cases, IAEA has had some difficulty in obtaining such cooperation. An example of this is the conditions established by some nations in consenting to the designation of inspectors. While it is the right of every nation to accept or reject a proposed inspector, there is the serious and growing practice of rejecting whole categories of proposed inspectors on political, linguistic, or nationalistic grounds. According to IAEA's Director General, this practice

has unfortunately led to retaliatory discrimination, distortions of the recruiting pattern, and ineffective deployment of inspectors in the field.

The IAEA Statute provides that the cost of safeguards is to be apportioned among all member nations. The reason for this was that the imposition of international controls is in the interest of the world community. However, with the advent of the Nuclear Non-Proliferation Treaty, many members, particularly developing nations, were concerned that expected increases in safeguards expenses would have the effect of increasing assessed contributions and/or diminishing other IAEA programs. Because of mounting costs of safeguards and the controversy as to how these costs were to be met, a complex formula was developed in 1971. Since then, more than two-thirds of the member nations have been insulated from an increased financial responsibility for implementing new safeguards.

Of IAEA's 110 members, 74 contribute less than 2 percent of the funding for safeguards. For 1982, 31 members are being assessed about \$750 for safeguards--the same as the lowest assessment made in 1971. Many member nations maintain that the financial resources of IAEA should be used primarily for technical assistance to less developed nations and to promote peaceful uses of nuclear energy. Thus, while many nations, in theory, fully support international safeguards, many are less supportive financially.

The United States has encouraged other member nations to render special assistance to IAEA in the technical aspects of

safeguards. Several are now providing technical assistance to IAEA. These special assistance programs of member nations represent a commitment to improving safeguards, and further efforts should be encouraged. Nevertheless, such programs should not lead to the dilution of the basic premise that the cost of IAEA safeguards are to be apportioned among all member nations.

In July 1975, we reported that political, financial, technical and material accountability problems were being encountered in applying international safeguards. Since that time, efforts have been made to address some of these issues, but the magnitude of IAEA's safeguards responsibilities has outpaced these efforts and IAEA continues to encounter the same basic problems.

We believe a commitment by all member nations is needed if IAEA is to fulfill its increasing safeguards responsibilities.

U.S. EFFORTS TO UPGRADE INTERNATIONAL SAFEGUARDS

To help the Agency upgrade its safeguards system, President Ford, in 1976, pledged \$1 million of special help annually for 5 years. In line with the President's pledge, the Department of Energy, the Arms Control and Disarmament Agency, the Nuclear Regulatory Commission, and the Department of State initiated a program of coordinated actions in support of Agency safeguards, including the Program of Technical Assistance to Safeguards.

This technical assistance program was originally to be of limited life and was intended to provide quick reaction to urgent needs, as identified by IAEA, to improve safeguards

effectiveness where normal Agency budget channels could not respond fast enough.

From fiscal year 1977 through fiscal year 1981, the United States provided about \$23 million through this special technical assistance program to improve international safeguards. In addition, the Department of Energy, the Arms Control and Disarmament Agency, and the Nuclear Regulatory Commission each have their own programs designed to support international safeguards. Since 1977, these agencies have expended a total of about \$30.6 million on these programs. Nevertheless, U.S. officials stressed that the special U.S. assistance program has become the main vehicle for providing technical resources, funds, and other support to improve international safeguards as envisioned by the Nuclear Non-Proliferation Act of 1978.

U.S. and Agency officials did indicate that this special U.S. assistance program has helped the International Atomic Energy Agency but during our review, U.S. officials conceded that this special U.S. program had not yet had as significant an impact on actual safeguards implementation as had been hoped.

The most noteworthy accomplishments have been improved inspector training and a better information processing capability through improved data processing software and hardware. Cost-free experts, which supplement the Agency's staff, also have provided valuable assistance in the areas of equipment technology and the development of systems studies to improve safeguards techniques. The Agency's capability to verify some nuclear materials quantitatively was improved by the

development of new instruments such as the neutron coincidence counter for plutonium.

Despite the progress made, most of the equipment resulting from the special U.S. assistance program was still in the evaluation and test stages and was not being used routinely on inspections at the time of our review. Inspectors complained that the system studies seem to be aimed at longer-term problems and not at solving current ones. It also appears that IAEA may not have the ability to absorb the results of some projects. Moreover, the IAEA has become much more dependent on the United States for support of safeguards improvements.

The procurement of new safeguards equipment and the expense of maintaining (and later replacing) such sophisticated equipment will probably become a significant factor. If IAEA does not have adequate resources in its budget, then IAEA dependence on the support of the United States and a few others may further increase.

SUPPORT FOR IMPROVING
SAFEGUARDS SEEMS APPROPRIATE

Continued support to improve safeguards seems appropriate. The cost of safeguards is low compared to the costs of world insecurity and increased military weaponry. However, care must be exercised so that IAEA does not become too dependent on the United States for its support. To retain its character as an international organization, IAEA must receive technical, political, and financial support from all its members. Once the member

nations are convinced that serious problems exist, they should demonstrate their support if they are truly committed to effective Agency safeguards.

NO CHANGE NEEDED IN
U.S. LEGISLATION

The Nuclear Non-Proliferation Act of 1978 reaffirmed U.S. support to strengthen IAEA safeguards. In this regard, there appears to be no need to revise the U.S. legislation. However, the United States must get more member nations to recognize the serious limitations impeding the effective application of IAEA safeguards and to join together in resolving these problems.

IAEA is a unique international organization, the application of its safeguards program represents an exceptional concession of national sovereignty by safeguarded countries. There is no ready replacement for it, so efforts must be expended to improve the existing establishment.

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This completes my statement, Mr. Chairman. We will answer any questions that you may have.