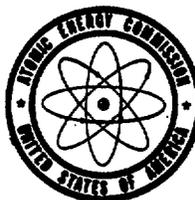


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SECRETARIAT

May 7, 1970

AEC 973/129

U.S. COMMENTS ON THE IAEA'S SAFEGUARDS RESPONSIBILITIES  
PURSUANT TO THE NPT

Note by the Secretary

The Assistant General Manager for International Activities has requested that his attached memorandum of May 5, 1970 with attachments, be circulated for the information of the Commission.

W. B. McCool  
Secretary

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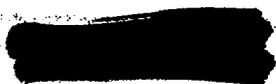
Secretary	7
Chairman Seaborg	4
Commissioner Ramey	1
Commissioner Johnson	1
Commissioner Thompson	1
Commissioner Larson	1
General Manager	2
Deputy General Manager	1
Asst. Gen. Mgr.	1
Exec. Asst. to GM	1
Spec. Asst. to GM	1
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[REDACTED]



UNITED STATES  
 ATOMIC ENERGY COMMISSION  
 WASHINGTON, D.C. 20545

MAY 5 1970

Chairman Seaborg  
 Commissioner Ramey  
 Commissioner Johnson  
 Commissioner Thompson  
 Commissioner Larson  
 THRU: *[Signature]* General Manager

U.S. COMMENTS ON THE IAEA'S SAFEGUARDS RESPONSIBILITIES PURSUANT TO THE NPT

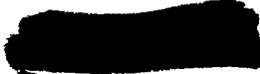
As reported in our memorandum of April 13, 1970,\* at a special IAEA Board of Governors meeting held on April 1 and 2, the Board established a special committee, which is to submit recommendations to the Board as a matter of urgency on the Agency's responsibilities in relation to safeguards in connection with the NPT and in particular on the content of the agreements which will be required in connection with the Treaty. Any IAEA Member State may participate in the committee's deliberations.

As its most urgent task the committee is to make every effort to provide the Board, during the month of July 1970, with an initial report containing advice on agreements, the negotiation of this is required to commence within 180 days of the entry into force of the Treaty. The committee is scheduled to hold its initial meeting on June 12 following the June IAEA Board of Governors meeting.

The resolution (appended) establishing the committee invited all Member States if they so desire to communicate to the Director General, as soon as possible and no later than May 1, 1970, their views on the implications of the NPT for the Agency's activities in relation to safeguards and in particular on the content of the agreements which will be required in connection with the Treaty. In compliance with the request this office, working in concert

\*Secretariat Note: Circulated as AEC 973/128.

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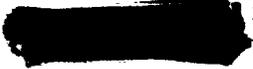
The Commission

with the Office of Safeguards and Materials Management and other interested offices, has forwarded to IAEA, through the Department of State, the attached letter setting forth the US position on these matters. The views expressed in this document are consistent with past US policy statements and they are divided into two major sections: the first being a series of general observations concerning the relevance of the NPT to the Agency Safeguards System and the second setting forth a series of specific comments on a draft model NPT safeguards agreement that the Agency is presently negotiating on a preliminary basis with the Government of Finland. This submission to the IAEA includes the following principal points:

NOT ATTACHED

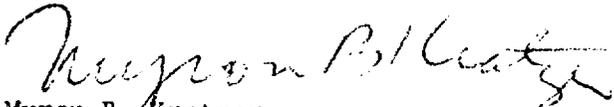
- (a) We underscore the extensive and useful experience the IAEA has acquired to date in developing and applying safeguard procedures and we review the key elements that generally have been regarded as essential to the maintenance of an effective international safeguards system;
- (b) We review some of the significant features of the basic IAEA safeguards document (Information Circular 66) as well as salient provisions of the NPT with the view of corroborating the position, long held by the US, that the existing IAEA safeguards document is sufficiently flexible to permit the negotiation of the kinds of safeguards agreements that will be necessary to implement Article III of the NPT; and
- (c) We furnish a number of specific comments on the Secretariat's draft model NPT safeguards agreement. By and large the staff considers this draft to be a good document for use in NPT negotiations with single states although we have suggested certain modifications to the Director General for consideration in the subsequent deliberations of the proposed safeguards committee.

Our experience over the last several months in Vienna has indicated that in the course of the safeguards committee's deliberations the US is apt to face not only serious and intemperate demands to review and emasculate the Agency's safeguards document but also a certain lack of knowledge on the part of some states of the progress the IAEA has made in the safeguards field as well as of the features that have been generally agreed as required for an effective safeguards system.

  
The Commission

For these reasons we felt compelled in preparing the attached material to submit an extensive outline of our views on the subject with the hope that it would not only serve to influence the other IAEA Member States but also might be instructive to those states that did not participate extensively in the detailed evolution of the IAEA safeguards system.

As I have already indicated we anticipated that the activities of the IAEA safeguards committee will not only draw a lot of international attention but also will require an extensive degree of backstopping from the interested AEC staff members. We are now in the process of informing other key states of the views which we have forwarded to the IAEA in Vienna. We also are developing plans, in conjunction with the Department of State, for a systematic series of consultations with those key states that are likely to play a decisive role in the IAEA committee deliberations.

  
Myron B. Kratzer  
Assistant General Manager  
for International Activities

Enclosures:  
GOV/INF/222  
May 1, 1970 Submission

13



International Atomic Energy Agency

# Board of Governors

GOV/INF/222

6 April 1970

RESTRICTED Distr.

Original: ENGLISH

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ESTABLISHMENT OF A COMMITTEE ON THE AGENCY'S SAFEGUARDS  
RESPONSIBILITIES IN THE LIGHT OF THE TREATY ON  
THE NON-PROLIFERATION OF NUCLEAR WEAPONS

A resolution adopted by the Board

Note by the Director General

1. The text of a resolution establishing a committee on the Agency's safeguards responsibilities in the light of the Treaty on the Non-Proliferation of Nuclear Weapons, which the Board adopted at its 425th meeting on 2 April 1970, is reproduced below.
2. Arrangements for the committee's first meeting, which is referred to in paragraph 4(c) of the resolution, will be the subject of document GOV/COM.22/1.

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THE AGENCY'S SAFEGUARDS RESPONSIBILITIES IN THE LIGHT OF THE  
TREATY ON THE NON-PROLIFERATION OF NUCLEAR WEAPONS:  
ESTABLISHMENT OF A COMMITTEE

The Board of Governors,

(a) Noting that the parties mentioned in paragraph 4 of Article III of the Treaty on the Non-Proliferation of Nuclear Weapons are required, either individually or together with other States, to conclude agreements with the Agency in accordance with its Statute and safeguards system for the exclusive purpose of verification of the fulfilment of their obligations under the said Treaty, for which purpose the Agency needs to be in a position to commence to negotiate such agreements within 180 days of the original entry into force of the Treaty with States which ratified it prior to that event,

- (b) Noting also that the safeguards required by Article III of the Treaty are to be implemented in a manner designed to comply with Article IV thereof and to avoid hampering the economic or technological development of the Parties or international co-operation in the field of peaceful nuclear activities, including the international exchange of nuclear material and equipment for the processing, use or production of nuclear material for peaceful purposes in accordance with the provisions of the said Article III and the principle of safeguarding set forth in the Preamble of the Treaty,
- (c) Noting further the statements made on behalf of the Governments of the United States of America and of the United Kingdom of Great Britain and Northern Ireland about the application of safeguards to nuclear activities in their respective countries,<sup>1/</sup>
- (d) Believing that safeguards should be implemented with due regard to the need for effectiveness and economy, and to the need to take full account of technical advances,
- (e) Noting further the Director General's letter SAF/112 of 11 March 1970,
- (f) Noting further that the Agency has acquired a substantial degree of experience over the past several years in formulating and applying safeguards procedures,
- (g) Believing that the flexibility of the Agency's existing safeguards system<sup>2/</sup> should be taken into account when negotiating agreements on safeguards,
- (h) Noting further that various aspects of the application of the Agency's safeguards system have been under examination by the Director General for some time, and
- (i) Convinced that all Member States must have a full voice in discussion of the matters covered by this resolution,

1. Invites all Member States, if they so desire, to communicate to the Director General, as soon as possible and preferably by 1 May 1970, their views on the implications of the Treaty for the Agency's activities in relation to safeguards, and in particular on the content of the agreements which will be required in connection with the Treaty;

2. Requests the Director General to circulate forthwith to all Member States the views referred to in the preceding paragraph;
3. Further requests the Director General, in the light of the said views of Member States and of the documentation mentioned in the Director General's letter SAF/112 of 11 March 1970, to circulate reports to all Member States containing his views on the implications of the Treaty for the Agency's activities in relation to safeguards, and in particular on the content of the agreements which will be required in connection with the Treaty; the initial report to be submitted by 1 June 1970 and to cover agreements the negotiation of which, in accordance with Article III, paragraph 4 of the Treaty, is required to commence within 180 days of the original entry into force thereof; reports on all other relevant matters to accompany this initial report or to follow as soon as possible thereafter;
4. Decides, with the objective of putting the Agency in a position at the earliest possible date to carry out its responsibilities in relation to safeguards in connection with the Treaty, to establish a committee, on which any Member State may be represented if it so desires, which shall:
  - (a) Have a Chairman and two Vice-Chairmen designated by the Board;
  - (b) Be authorized, in order to facilitate its work, to establish working groups and to call on expert assistance;
  - (c) Hold its initial meeting on or about 12 June 1970;
  - (d) In the light of the documentation prepared pursuant to paragraphs 1 and 3 above, and of its deliberations, advise the Board as a matter of urgency on the Agency's responsibilities in relation to safeguards in connection with the Treaty, and in particular on the content of the agreements which will be required in connection with the Treaty; and
  - (e) From time to time, report the results of its deliberations to the Board, and make, as soon as possible, such recommendations as it deems necessary; in particular, as its most urgent task, make every effort to provide the Board during the month of July 1970 with an initial report containing advice on agreements, the negotiation of which is required to commence within 180 days of the original entry into force of the Treaty; and

5. Further decides to hold a meeting as soon as practicable after receiving the committee's initial report, but in any case before 25 August 1970, for the purpose of considering the matter.

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1/ Reproduced in document GOV/1383, Annex.

2/ Set forth in document INFCIRC/66/Rev. 2.

Dr. Sigvard A. Eklund  
Director General  
International Atomic Energy Agency  
Kaerntnerring 11  
Vienna 1, Austria

Dear Dr. Eklund:

In response to the request contained in GOV/INF/222, the Government of the United States is pleased to transmit under cover of this note its comments regarding the implications of the Non-Proliferation Treaty on the safeguards activities of the International Atomic Energy Agency; and in particular on the content of the agreements concerning safeguards to be negotiated in connection with that Treaty.

The US welcomes the establishment of the safeguards committee and the opportunity which this committee will afford all members of the Agency to participate in the consideration of how the Agency's safeguards responsibilities under the Non-Proliferation Treaty will be discharged.

Our comments, as foreseen by GOV/INF/222, consist of two sections: (a) US views regarding the implication of the Treaty for the Agency's safeguards activities; and (b) US views concerning the desirable content of agreements the negotiation of which is required to commence within 180 days of the original entry into force of the NPT. In preparing the first section, we have endeavored to place our comments in the framework of a review of the origins and technical background of the Agency's safeguards system.

Our comments on the desirable content of the agreements whose negotiation is to commence within 180 days of the original entry into force of the NPT are based on the working draft of a comprehensive safeguards agreement being negotiated with a member state referred to in your letter of March 11, 1970. We found this document and the other documentation identified in your letter to be of invaluable assistance in focusing our own consideration upon the issues with which the committee will be concerned, and we are confident that this documentation will also serve as an effective basis for the work of the safeguards committee.

Dr. Eklund

In transmitting US views called for in GOV/INF/222, I should like to confirm the strong support of my Government for the evolutionary development and improvement of the Agency's safeguards system, taking full account at all times of advances made possible by technological developments and of the flexibility inherent in the current Agency's safeguards document. In this regard, we should like to commend the continuing and vigorous efforts which you and the Secretariat have devoted to the continual rationalization and improvement of the Agency's safeguard system. This is evidenced, for example, by the documents enclosed with your March 11 letter, by the frequent meetings of technical panels involving the direct participation of experts from several member states in the evolution of the Agency's safeguard system, and similar measures.

We should like to reiterate also our strong support for the conclusion reflected in GOV/INF/222 that every effort should be made to undertake the steps necessary to enable the Agency to commence by September 1970, and in a substantive manner, the negotiation of the agreements which must be started within 180 days after the Treaty entered into force. We believe that any failure on the part of the Agency to proceed with these negotiations on a timely basis would raise grave doubts on the part of many as to its ability to discharge its safeguards responsibilities in an effective and businesslike manner, and would also unfairly deprive negotiating states of a portion of the full time for such negotiation to which they are entitled under the NPT.

We are prepared to cooperate to the best of our ability to help ensure the timely completion of the important work called for by GOV/INF/222.

Sincerely yours,

U.S. Representative

## I. Implications of the NPT on the Agency's

### Safeguards Activities

#### A. Historical Resume and Technical Background

In connection with implementing GOV/INF/222 which was approved in Vienna on April 2, 1970, the Government of the United States wishes to make some general comments about the IAEA Safeguards System and its application under the NPT.

1. It is important to recall that the framework for the Agency's Safeguards responsibilities as set forth in the Statute and in INFCIRC/66 Rev. 2 was laboriously and carefully developed over a period of several years with widespread participation of the Agency's membership. The provisions in Articles III A5 and XII of the Statute were, of course, developed after the most exhaustive negotiation. Subsequently, working through various technical committees, the Board of Governors took a series of significant steps to enunciate, in greater detail, the general principles that would apply in administering these provisions. In 1961 the Agency's first Safeguards Document (INFCIRC/26) (prescribing procedures for materials in reactors of up to 100 thermal megawatts in size) was approved, as was the Inspector's Document. In 1964 these procedures were amplified to cover nuclear materials in large reactor facilities. Following this, in 1965, after extensive debate including active consideration in the General Conference, a revised Safeguards Document, namely INFCIRC/66 was produced. This review was an extremely important step in the evolution of the Agency's safeguard system. While retaining many of the concepts and procedures of the former

document and its extension, it introduced or clarified a number of significant new principles, including the requirement for advance consultation by the Director General in connection with the implementation of safeguards agreements, the concentration of the Agency's safeguard system on materials, and the restriction on the power of inspectors to request interruption of operations or other measures which might inconvenience plant operators. Subsequently in 1966 and in 1968, two revisions to INFCIRC/66 were agreed upon:

Revision 1 specified procedures applicable to nuclear materials in processing plants; and Revision 2 covered the handling of such materials in conversion and fabrication plants. Each step was taken only after considerable study and extensive consultations. Additionally, through the years the Agency acquired extensive experience in actual implementation by applying its safeguards to a growing number and variety of activities.

2. The United States has frequently noted that the evolution of international safeguards, as illustrated by this chronology, has not been prompted by distrust. Rather it has been designed to facilitate international nuclear commerce and domestic nuclear progress by offering independent and credible assurances to all countries that unauthorized diversions of nuclear materials are not taking place.

3. Moreover, during the negotiations leading to Article III of the NPT the importance of adequate safeguards was stressed by the representatives of many different nations. The principles which would govern the implementation of that Article were outlined by the US co-chairman to the ENDC in July of 1968 in the following words:

"1. There should be safeguards for all non-nuclear weapon parties of such a nature that all parties can have confidence in their effectiveness. Therefore safeguards established by an agreement negotiated and concluded with the IAEA in accordance with the Statute of the IAEA and the Agency's safeguards system must enable the IAEA to carry out its responsibility of providing assurance that no diversion is taking place.

"2. In discharging their obligations under Article III, non-nuclear-weapon parties may negotiate safeguards agreements with the IAEA individually or together with other parties; and, specifically, an agreement covering such obligations may be entered into between the IAEA and another international organization the work of which is related to the IAEA and the membership of which includes the parties concerned.

"3. In order to avoid unnecessary duplication, the IAEA should make appropriate use of existing records and safeguards, provided that under such mutually-agreed arrangements IAEA can satisfy itself that nuclear material is not diverted to nuclear weapons or other nuclear explosive devices."

4. The United States is of the view that the extensive experience the IAEA has gained in the field of safeguards has been invaluable in preparing the Agency for the responsibilities, concerning safeguards, that it is now called upon to assume pursuant to the NPT. The US also believes that it is essential in considering the nature of the agreements to be negotiated pursuant to the NPT that all participants should recognize two considerations: (a) the Agency's safeguards system, as already illustrated, represents years of careful work and negotiations during which the fundamental principles of an effective safeguards system have been defined; (b) during the past six or seven years the IAEA Secretariat has gained extensive valuable experience in administering effective safeguards which are economical and are designed to avoid hampering the economic or technological development of the countries in which they are applied.

B. Key Elements to Effective International Safeguards

It has been generally recognized that the purpose of safeguards is to detect the diversion of significant quantities of nuclear material from safeguarded uses to unauthorized uses or for purposes unknown and to deter such diversion by the risk of early detection.\*

The guiding principle of all nuclear safeguards systems is that there must be adequate independent verification that material is not diverted. This means the safeguards authority must be able to determine by objective means, not dependent solely on unverified data provided by the inspected party, that there has been no diversion.

In brief terms, and within this framework, the key elements of an effective and practicable safeguards system, as they have been developed and defined through the years may be summarized as follows:

A practical safeguards system must be a graduated one that relates the intensity of safeguards to the potential risk for diversion. It must, therefore, distinguish between materials of differing amount and form. The same effort, for example, cannot be devoted to grams of fissionable material as to hundreds of kilograms. Neither is it appropriate to devote the same amount of attention to the material in small research reactors as to that in a large power reactor, a fuel fabrication, or a processing plant. The Safeguards System as defined through the years has recognized these logical and practical distinctions.

\*This definition generally conforms with the definition employed by the Agency's consultants as reported in GOV/INF/212.

*not for formal  
as element  
2/1/80*

One area of frequent misunderstanding relates to the need in an effective safeguards system for safeguards on source material or slightly enriched uranium which are not themselves capable of use in nuclear weapons. It is entirely proper that the relative intensity of safeguards on these materials should be considerably lower than that on highly enriched uranium or plutonium which are themselves weapons materials, and this important distinction is provided for in the Agency's safeguards system. However, in order to insure that either highly enriched uranium or plutonium, both of which are produced from source material or slightly enriched materials, are brought into the safeguards system and properly accounted for as soon as they come into existence, it is essential that the fertile materials from which they are derived be known to and accounted for by the safeguarding authority. The failure to include this feature in a safeguards system would in effect lead to the result that the system would be based on the unverified assertion by the parties being safeguarded as to the amounts or location of weapons grade fissionable material which were properly subject to the system.

An effective international safeguards system must, furthermore, depend upon the existence of an effective local materials control system. This is essential (a) to hold the cost and manpower requirements to acceptable levels and (b) to minimize the intrusion of safeguards into plant operations. A basic objective, therefore, of the international safeguards authority is to verify the proper use of materials reflected by

the local control system. This, in turn, leads to two basic elements in an effective safeguards system (a) the review of records and reports concerning the safeguarded nuclear material and (b) actual on-site inspections or visits designed to determine, independently, the validity of a nation's assurances against diversion of material.

Inspections include two features, namely (a) steps involved in verifying the physical inventory and flow of material to determine, on a statistical basis, whether the amounts conform with reported figures and (b) other observational measures designed to determine that material is used, stored, or transferred in the usual manner. These two functions are complementary in nature. The first approach basically is statistical in nature and normally involves the taking of a relatively small number of samples. The objective is to measure quantities within a nuclear complex and to strike a "material balance" (that is determine that the output is equal to input less process losses and consumption). While material accounting is a powerful and efficient safeguards technique, every system of measurement involves an unavoidable inaccuracy, and small diversions might well go undetected. Accordingly, additional observational techniques are required since they may serve to detect a diversion that is not detectable by the available measurement techniques. Each of these inspection functions can, in turn, be facilitated through instrumentation and the adoption of other impersonal techniques. An example of these techniques is the installation of simple seals on reactors or other units of equipment which

demonstrate, without the need for frequent inspection visits, that no unscheduled materials transfers have occurred.

The effective application of safeguards can be considerably simplified by the use of techniques which assure "containment" of fissionable materials, especially in locations where the potential for unauthorized removal is particularly high. As suggested above, this may include the placement of locks or seals on areas where high-grade fissionable material is present in removable form. Where it is impractical to employ such devices the physical presence of inspectors may accomplish the same purpose.

Experience has shown that the precise procedures to be followed by inspectors can be developed only on a case-by-case basis, through careful consideration of the characteristics of the specific activities and/or materials involved. For example, at a nuclear complex handling highly enriched nuclear material continuous inspection is often necessary. This is because the flow through such facilities may be so rapid and so complex that inspections undertaken only periodically provide no information capable of verifying the status of plant inventories even a short time earlier. Even here, however, the activities of the inspectors concentrate on the material flow in the facility, and the safeguards function involves no interference with plant activities.

Much of the discussion concerning the possible intrusiveness of safeguards has focused on the frequency of inspection, and especially on continuous inspections. In reality, the intrusiveness of an inspection regime does not depend so much on the frequency of safeguards visits as

it does on the intensity of access by the inspectors when such visits take place. Under some circumstances, a reliance solely on periodic inspections, if effective at all, would require a far more detailed access on the part of inspectors than if continuous inspection were employed. Continuous inspections designed, for example, to confirm by observation that a sample to be furnished to the Agency is properly taken from a particular location in a plant should involve no burden at all to plant operators.

Thus, highly detailed inspections undertaken periodically may well place a greater burden on the plant operator than continuous inspection. Conversely, an increased frequency of inspection, including continuous inspection where appropriate, can reduce the required overall intensity of access, and can facilitate other simplifications in safeguards techniques. Regardless of whether periodic or continuous inspection is employed, the guiding principle should be the achievement of adequate independent verification that material has not been diverted, at least possible cost and interference with plant operations.

A subsidiary but important element of any effective safeguards system is design review. The performance of a design review is necessary and pertinent to the effective application of safeguards to the nuclear materials involved because it enables the inspectors to understand the flow and transformation of materials in a facility and thereby identify the locations in the plant where safeguards efforts must be concentrated. In addition, design reviews may well identify features of plant design which, if incorporated, could simplify the safeguards task both for plant management and the inspectors. It is obvious, therefore, that design reviews are not only necessary but likely to be beneficial to inspected and inspectors alike.

The United States wishes to emphasize its belief that design reviews need not concentrate on details of technology which might be proprietary. On the contrary, the emphasis should be on general plant arrangements depicting the flow of materials, provisions for sampling, and means of entrance and exit of materials and personnel to and from the plant. These points have been illustrated by the various consultant reports referred to in the Director General's letter of March 11, 1970. We are gratified to note from GOV/INF/212 that the Agency's consultants do not believe extensive detailed technological information about individual facility stages normally should be required in the process of design review. We also believe that additional techniques can be devised to assure that any proprietary information obtained by the Agency during this process will be protected. One such technique could be a procedure under which documents containing proprietary information would be made available for review by the Inspectorate but not left permanently with the Agency.

A final and most important aspect of any safeguards system is the administrative framework in which it operates. Inspectors should be given adequate authority to perform their function efficiently and the details of a safeguard system should be developed by a technically qualified organization of specialists. At the same time, the general performance of the inspectorate should be subject to careful monitoring of a senior governing body on which the inspected parties are themselves strongly represented. These criteria are ideally met in the IAEA. The United States attaches the highest importance to the fact that the Agency's inspectorate is subject at all times, through

the Director General and the Inspector General, to the overriding supervision of the Board of Governors. In the unlikely event of any abuse of discretion, or misemphasis in the application of the system which is not resolved through consultation with the Director General the matter can and should be brought to the attention of the Board.

Selection and rejection of inspectors is another aspect of the overall matter of safeguards administration. The Agency's system contains well understood provisions which require (a) approval of the Board of Governors of the designation of each inspector, (b) consultation by the Director General with states concerned before assignment of a particular inspector to the state, and (c) an opportunity by each state to reject inspectors which are not deemed acceptable. These provisions constitute another invaluable means of protection for states subject to inspection.

The United States believes an effective safeguards system must be based on the foregoing basic elements. These principles have been properly reflected in both the policies and practices that have been adopted by the IAEA to date. Experience has demonstrated that a safeguards system based on these principles can be operated without significant interference with plant operations and at costs which are very minor in comparison with the value of the nuclear power produced. Since 1964, for example, the first full-scale commercial nuclear power station within the United States - the 175 MW(e) Yankee reactor - has been under Agency safeguards. Moreover, Agency safeguards have been applied to the commercial fuel discharged from

this reactor during reprocessing. The Agency has carried out its safeguards responsibilities in these activities and the other US activities voluntarily placed under Agency Safeguards without interference in the operations involved. Because of this favorable experience, the United States felt confident in making its offer, on December 2, 1967, to permit the IAEA to apply its safeguards to all nuclear activities in the US, excluding only those of direct security significance, when such safeguards are applied under the NPT.

C. The Flexibility Afforded by the Existing IAEA Safeguards Document (INFCIRC/66 Rev. 2)

In considering the relevance of INFCIRC/66 to the Non-Proliferation Treaty the United States believes it should be recalled that this document was designed to cover a variety of factual circumstances and to accommodate technological improvements in the safeguards field.

In this regard, the following considerations should be emphasized:

First, INFCIRC/66 Rev. 2 does not prescribe an explicit and detailed safeguards system, but rather a series of broad principles together with an assertion of the Agency's safeguards rights derived from the Agency's Statute itself. Thus, INFCIRC/66 is not a statement of precisely what the Agency must do in applying safeguards to any specific program, but rather a description of a variety of methods by which the safeguarding can be performed.

Second, the document provides that its provisions "only become legally binding upon the entry into force of a safeguards agreement and to the extent that they are incorporated therein."

Third, the document provides for numerous protections against arbitrary action, interference in plant operations or, bearing in mind Article VII of the Statute, unauthorized disclosures of commercial information.

(Indeed, the very language of Article III of the NPT to the effect that the safeguards arrangements shall be designed to avoid hampering technological development is derived from INFCIRC/66 itself).

Fourth, the document makes it clear that the Agency is to give effect to improvements made possible by its experience as well as by technological developments.

Fifth, as one of its most important principles the document repeatedly enjoins the Agency to restrict its safeguards activities to those necessary to provide assurance against the diversion of nuclear materials. The United States has observed that there is a widespread belief that Agency inspectors are to have virtually unlimited access to the states in which they are conducting inspections. This misunderstanding may arise from the words of Article XII A(6) of the Statute, which state that inspectors "shall have access at all times to all places and data and any person....", but it overlooks the important qualifying language "as necessary to account for source and special fissionable materials....and to determine whether there is compliance with the undertaking....". The United States regards both of the passages in Article XII A(6) as being of equal importance, and as constituting the heart of the essential principle that safeguards are to be no more intensive than necessary to effectively accomplish their objective.

Paragraph 47 of INFCIRC/66 Rev. 2, expresses this same principle by stipulating that: "The number, duration, and intensity of inspections actually carried out shall be kept to a minimum consistent with the effective implementation of safeguards, and if the Agency considers that the authorized inspections are not all required fewer shall be carried out."

It follows from the above points that INFCIRC/66 Rev. 2 is to be regarded as a broad expression of general principles and safeguards rights. There is an important distinction between this general guide and the actual Agency safeguards system which represent the measures applied at a particular time to a particular activity. The United States is firmly committed to the steady, evolutionary improvement of the Agency's system and believes this readily can be encompassed within the broad and flexible provisions of the Safeguards Document. As one mechanism to keep the application of Agency Safeguards under continuing review and to achieve optimization the US has consistently supported the convening by the IAEA of various panels and consultant groups. In the period since July of 1967 alone the Agency has convened seven such technical panels in which experts from a wide number of member states participated.\* This constitutes an impressive record of

\*In this period the Agency convened the following panels:

1. August 1967 - panel on safeguards techniques to advise on priorities for safeguards research and development. Experts from seven member states took part.
2. April 1968 - panel on safeguards technical practices for irradiated fuel plants. Experts from eight countries participated.
3. September 1968 - panel on safeguards methods for reactors. 14 countries were involved.
4. April 1969 - panel on safeguard methods for conversion and fuel fabrication plants. Participants from ten states.
5. August 1969 - panel on safeguards systems analysis of nuclear fuel cycles.
6. December 1969 - panel on safeguards methods and techniques with special reference to inspections. Seven participating states and 25 observers.
7. April 1970 - panel on design review. Nine participating states.

concern for the technical improvement of safeguards. The US also has strongly favored programs of research and development designed to simplify and depersonalize safeguards and make them even less intrusive. Toward this end, the United States is currently spending more than four million dollars per annum on such R&D, the results of which are being made available to the Agency.

D. Relationship of INFCIRC/66 to the Specific Provisions of the NPT

In the light of these observations the United States wishes to comment on certain specific points arising from the NPT.

It has been frequently pointed out that there is a distinction between the purpose of safeguards as called for by the Treaty and the purpose in previous safeguards arrangements. The purpose in the case of the Treaty is to detect and prevent diversions of materials to use in the manufacture of nuclear weapons or other nuclear explosive devices -- rather than diversions to all military uses. This modification in purpose, however, does not alter the key technical essentials of an effective safeguards system since, in either case, the practical task of safeguards is to detect diversions to unauthorized uses or for purposes unknown. Thus, no change is brought about in safeguard procedures by this modification in purpose. The modification, of course, is an important legal distinction and must be reflected in safeguard agreements entered into under the NPT.

*Not so stated on page 14.*

The suggestion has been made that, when a country's entire peaceful nuclear program is placed under safeguards as called for by the NPT, certain simplifications in the application of safeguards may be feasible as compared with instances where only a portion of the country's program is safeguarded. The United States agrees that some simplifications may be possible in these circumstances, since cross checking between various activities is facilitated if a nation's entire civil program is covered. INFCIRC/66 was not drafted to cover only cases of isolated facilities under safeguards and, in fact, is well suited to the application of safeguards to a nation's entire nuclear activities since, as already noted, the document enjoins the Agency to do only what is necessary.

The United States further believes the Safeguards Document is fully compatible with the sixth preamble to the NPT, which sets forth the goal of concentrating safeguards on the flow of materials at strategic points, using instruments and other advanced techniques insofar as possible. The United States believes that this principle, as enunciated in the Treaty, represents a logical evolution of concepts already found in the Agency's Statute and INFCIRC/66 Rev. 2. Much of the safeguards development work underway in the US is devoted to this concept, as urged in the NPT.

In particular, much of the effort that went into the general review and revision of INFCIRC/66 in 1965 was devoted to making it clear that nuclear materials are the focal point of safeguards and the US believes that a careful reading of the document will show that only materials are subject

to safeguards. Clearly, however, since such materials are employed in various types of facilities the document cannot avoid reference to the types of safeguards procedures applicable at various types of facilities in which safeguarded materials may be employed. This does not detract from the point that it is materials which are the objective of safeguards.

The principle of maximum use of instrumentation has also had a lengthy tradition in the IAEA's Safeguards thinking and is directly related to the principle of safeguards at strategic points. It is, of course, important to bear in mind that, as the NPT makes clear, the application of this principle is subject to the qualification that the resulting safeguards must be effective. Today, the technical capabilities for accurate measurement at several points in the fuel cycle are not sufficiently advanced to permit the general application of the concept of safeguards at strategic points to the exclusion of more conventional techniques. For this reason the Treaty recognizes the need for further research and development in this field. In addition, the principle itself is a flexible one which permits changes in the selection of strategic points and the degree of application of instruments as technical capabilities improve through research and development.

#### E. Financing Safeguards

The US favors the current practice of covering IAEA's safeguards expenses under the Agency's assessed budget. We regard this practice as consistent with the great importance that the effective implementation of this program holds for all member states. The contribution of safeguards to world peace and stability will, of course, be strengthened even further with the effective implementation of the NPT. We have been pleased that the majority of member

states have shared this view.

It should be appreciated that regardless of the method of cost allocation selected, the cost of safeguards in the final analysis will be borne by individual states. Under the present method of assessing these costs against the Agency's regular budget, member states contribute to the cost of safeguards in accordance with the United Nations formula which takes into account a number of relevant economic factors. We believe that this approach is an equitable one since those states most likely to place the heaviest demand on the Agency's safeguards system are the ones which are most likely to bear the largest share of the cost as part of their assessed contribution.

This conclusion results from the fact that there will normally be a close relationship between a nation's utilization of nuclear power and its degree of industrialization which heavily influences its contribution to the Agency's assessed budget. While some departures from this general rule might exist, their financial consequences will continue to be small so long as the overall scale of nuclear power utilization and, therefore, of the Agency's safeguards, remain modest as they now are. Under these circumstances while the United States has indicated its willingness to review the matter of allocation of safeguards cost from time to time in the future, we believe that no change from the arrangements which have served well to date is justified.

The United States also fully sympathizes with the views expressed by some member states that the growth in the Agency's safeguards responsibilities should not jeopardize other essential IAEA programs of particular interest to the lesser developed countries, including the technical assistance program. We anticipate that a reasonable relationship between these various activities will be maintained. We also believe it is important to recall that the Agency's technical assistance program is financed separately under the operational budget and does not compete dollar for dollar with the Agency's safeguards budget. The US plans to continue to make significant contributions to the technical assistance program, bearing in mind the terms of Article IV of the NPT. We were pleased to be able to announce at the IAEA Board of Governors meeting last February our willingness to make a significant increase in both our cash and "in kind" contributions to that program for 1970.

II. Provisions to be Included in the Initial Agreements  
to be Negotiated in Connection with the NPT.

The United States should now like to make some observations on the desirable content of the agreements concerning safeguards which will be required in connection with the NPT. Bearing in mind the urgent time scale laid out in GOV/INF/222 we shall confine our comments to the "agreements the negotiation of which is required to commence within 180 days of the original entry into force of the Treaty."

The US comments set forth in this section are based on two documents referred to in the Director General's letter of March 11, 1970: (a) the draft, dated March 9, 1970, of a comprehensive safeguards agreement being negotiated with a Member State; (b) the Secretariat's explanatory memorandum of March 20, 1970 pertaining to this draft agreement.

A. Recommended Procedure to be Followed by Safeguards Committee.

Before turning to the specific features of the forementioned draft agreement, we should like to comment on the general approach that we believe the Safeguards Committee should take on this matter.

As called for by terms of GOV/INF/222, it is the immediate objective of the Director General and the Committee to "make every effort to provide the Board during the month of July 1970 with an initial report containing advice on agreements the negotiation of which is required to commence within 180 days of the original entry into force of the Treaty." Bearing in mind this schedule and the urgency involved, it is the US view that .

the initial reports submitted by the Director General and by the Committee to the Board should be well focused and precise in nature and should be addressed to the provisions that might be included in the initial agreements to be negotiated pursuant to the Treaty. The US believes that the Secretariat's draft agreement of March 9, 1970 and their explanatory memorandum of March 20, 1970 should be extremely useful in achieving these objectives.

In accordance with Article III of the NPT, each party to the Treaty is entitled to negotiate the specific terms of its particular agreement with the Agency, recognizing that circumstances may vary from state to state, in keeping, of course, with the Statute of the Agency and its safeguards system. We, therefore, believe it will be both infeasible and undesirable for the Committee and the Board to attempt to specify in any mandatory way the precise content or language of agreements that should apply in various circumstances. Moreover, such an approach is unnecessary in our view, since following specific negotiations, the Board will be requested to consider and approve the proposed arrangements. Accordingly, the United States believes that the Director General's initial report to be submitted on June 1, 1970, as well as the Committee's initial report to be submitted in July should present (a) a detailed outline, for illustrative purposes, of the recommended types of provisions that might be included in agreements with states that have already ratified the NPT; (b) appropriate explanatory comments in each instance concerning the rationale for each provision together with suggested alternatives where relevant; and (c) a resume of any relevant comments expressed by various member states on various

provisions. We would expect that other matters, including the effects the NPT might have on the Agency's other safeguards activities, could be taken up by the Committee at a later stage.

B. Comments on Secretariat's Draft Agreement of March 9, 1970.

The United States understands that the draft agreement of March 9, 1970, which is still under negotiation with the Government involved, is the product of extensive work within the Secretariat and is based on a series of earlier drafts of such an agreement which were successively refined by the Secretariat. While we have some modifications to propose, we believe this document is generally well conceived in its approach. Moreover, it reflects a number of significant modifications from previous IAEA agreements which are specifically designed to accommodate the particular features of the NPT.

In particular we note that the draft agreement:

(a) appropriately underscores the fact that, in the NPT context, safeguards shall be applied only to nuclear material, and that any access to facilities (including design review) shall be limited to that necessary and relevant to this purpose. While, as already noted, the US has always construed that nuclear materials were the objective of safeguards in INFCIRC/66, this point is emphasized even more forcefully in the proposed agreement;

(b) emphasizes the point, in keeping with Article III of the NPT, that the safeguards shall be implemented in a manner designed to avoid hampering economic or technological development or international cooperation;

(c) specifically enjoins the Agency to take account of further technological developments in the safeguards field including "in particular, developments pertaining to the principle of safeguarding effectively the flow of nuclear material by use of instruments and other techniques at certain strategic points";

(d) permits, under appropriate conditions (Section 7), states to transfer nuclear materials to uses not proscribed under the NPT. At the same time the agreement is drafted so as to facilitate the suspension of safeguard arrangements in effect between the state and those supplying countries that make nuclear materials and equipment available subject to a peaceful uses undertaking;

(e) stipulates as one of its conditions that the state involved shall maintain an effective materials control system. The Agency is instructed to take full account of the opportunities for economy and simplification which such a national system may offer;

(f) assures that the state concerned would have to agree to any amendments in the safeguards system including any modifications in the definition of "nuclear material" before they could become applicable to the proposed agreement;

(g) incorporates a number of important and major new provisions that implement in more specific ways the Agency's long-standing principle that the safeguards applied should be relevant to the occasion and the minimum necessary. In this regard, we have noted that in implementing the Annex to the proposed agreement and in the process of design review, the Secretariat contemplates providing the state concerned with a more precise

advanced indication of (a) the material balance areas to be used for safeguards purposes; (b) the conditions requiring, as well as the procedures for, taking of physical inventories; and (c) the locations where inspections normally shall be made. While we believe that some clarifications are necessary in the text (notably in paragraphs 9 and 18 of the Annex) we believe the proposed Annex contemplates a very major effort on the Secretariat's part to provide the state concerned with greater advance specificity concerning the normal safeguards that will apply.

We note that the agreement provides the state concerned with certain procedures, not heretofore found explicitly in IAEA agreements, to bring any complaints it may have about the implementation directly to the Board. The agreement also incorporates by reference the important protections against abuse or unauthorized disclosure of information which already are found in the Agency's safeguards and inspectors documents (INFCIRC/66 and GC(V)INF 39).

All of these features represent important evolutionary modifications designed to make the agreement responsive to the needs of the NPT and to the general principle of achieving effective safeguards as simply and unintrusively as possible.

As noted, however, the United States believes that certain further clarifications in the draft, or understandings regarding its intent, are required, and we would hope that the Director General could reflect these in his report which is to be submitted to the membership by June 1.

Our views on some of the more significant provisions of the agreement, including several areas where clarification may be desirable, follow. We may supplement these further in the course of the Committee's deliberations.

(a) the United States is anxious to suspend the application of any of the bilateral safeguards rights it may have with another state whenever the NPT agreement involved provides appropriate assurances that US supplied nuclear materials, equipment, or produced nuclear materials are not being employed for any military purposes. We favor the concept of one comprehensive safeguards agreement that will cover materials received from different countries under differing conditions. We look upon the realization of this objective as one of the practical benefits to be achieved pursuant to the NPT and the proposed agreement. For these reasons, we welcome the provision in Section 7 (a) of the proposed agreement which stipulates that the state involved will satisfy the Agency that any nuclear material it proposes to transfer out from under safeguards is not subject to any undertaking that it shall only be used for peaceful purposes.

To make this possible, so far as US bilateral arrangements are concerned, however, we believe the intent of Section 7 would be better expressed if it were made clear that nuclear material which either had been placed under safeguards through an Agency project, or was required by a bilateral arrangement to be safeguarded, could not be used for a non-prohibited military use without the Agency's approval. Such approval would, of course, not be given unless the Agency was satisfied that the proposed use was not in conflict with the undertaking of the Member State.

(2) In the judgment of the United States, it is appropriate for the Board to take some or all of the actions called for by Article XII C of the Statute in the event the basic undertakings of the Agreement have not been adhered to. For this reason, we favor the inclusion of a

provision along the lines of Section 10 although we will have some alterations to propose. The provisions of Article XII C of the Statute have long been an integral part of the Agency's safeguard agreements and the US believes they continue to be pertinent in this instance bearing in mind the significance of a diversion and the fact that Article III of the NPT provides that the agreements involved are to be concluded in accordance with "the Statute of the International Atomic Energy Agency and the Agency's safeguards system." We also wish to stress that Article XII C authorizes only the Board of the Agency to deal with such acts of non-compliance emanating from safeguard agreements concluded with the Agency. Therefore, in the US view, it would be incompatible with the Statute, unnecessary and undesirable to establish a special body, comprised solely of member states parties to the NPT, to consider any irregularities that might occur under this agreement.

(3) On a related point, the United States agrees, that a provision along the lines of Section 19 (c) has the virtue of permitting, in urgent cases, effective continuity in the application of IAEA safeguards. We believe, however, that any invocation of the provisions of Article XII C of the Statute should be discretionary with the Board rather than mandatory in the event paragraph 10 (c) is not adhered to by the state concerned.

(4) The United States shares the view of several other states that agreements concluded pursuant to the NPT should clearly define the point at which safeguards begin. We also agree with the concept that safeguards should not have to be applied to uranium mines and ore processing plants. It is our view, however, that IAEA safeguards normally should commence with the uranium concentrate produced by ore-processing plants.

Generally, it is at the concentrate stage that the uranium content of feed material can be determined and confirmed with a high degree of accuracy, and it is at this stage that the concentration of uranium in the product becomes significant from a safeguards standpoint either in assessing a state's domestic activities or in evaluating the safeguards significance of international nuclear commerce. Paragraph 1 (a) (11) of the Annex to the proposed agreement, however, would appear to exclude all concentrates from the scope of the agreement prior to introduction into a conversion plant. Accordingly, we believe it would be more appropriate to specify in the agreement that concentrates of uranium and thorium ore shall not be considered nuclear material if they contain less than five percent by weight of uranium or thorium.

(5) The United States has noted that paragraph 16 of the Annex is designed to cover materials in transit. We agree with this objective since there is growing recognition that the period of transit is critical from a safeguards standpoint. We believe, however, that the present formulation requires improvement. In particular, we believe that under the terms of the agreement, the Agency should have the explicit opportunity to approve the proposed transit arrangements, and we judge from paragraph 18 of the Secretariat's explanatory memorandum that the Secretariat shares this view. We also believe that, if possible, the detailed arrangements developed prior to transit should specify that some authority would be answerable for the material or responsible to the Agency during shipment.

(6) The US notes that paragraph 6 of the Annex provides that subsidiary arrangements shall take effect within a number of days, to be specified, following the entry into force of this agreement. Whenever practicable we believe that subsidiary arrangements should be developed, in advance, in the process of negotiating the basic agreements. We appreciate, however, that this may not be feasible in all cases bearing in mind the fact that, as the agreement is now framed, all of the information necessary for the subsidiary arrangement may not be made available by a statement to the Agency until after the agreement is in force. Nevertheless, to assure effective continuity in the application of safeguards, we believe Section 6 should specify that pending agreement on subsidiary arrangements, and from the date the agreement comes into force, the Agency shall apply the safeguards procedures referred to in paragraph 4 of the Annex. Such a change also would be required to permit the Agency to discharge the obligations under Section 2 of the Basic Agreement.

(7) The United States notes (in connection with paragraph 2 of the Annex) that the safeguards to be applied under the proposed agreement are to enable it to verify independently the locations and quantities of nuclear material subject to safeguards and to detect promptly any diversions. This, as already noted in our general comments, is compatible with the basic purpose of an effective safeguards system, which includes opportunities for on-site inspection or observation as an essential feature. These inspections, in turn, include two important elements:

(a) steps involved in verifying the physical inventory and flow of material to determine whether the amounts comply with reported figures; and (b) measures of an observational nature designed to determine directly whether there has been any unauthorized removal of material.

It is the understanding of the United States that the provisions of the Secretariat's draft agreement, notably Sections 9 and 18 of the Annex, are designed to reflect these two fundamental elements of any inspection process. That being the case, we believe the intent would be better conveyed by modifying paragraph 18 (c). This modification would specify that one of the purposes of inspections would be to verify inventories and the flow of nuclear material by independent measurements, observation, or other independent and objective methods.

(8) Lastly, with reference to paragraph 18 (d) of the Annex, the US agrees that certain instrumented techniques or techniques of containment can be extremely useful in both depersonalizing and simplifying safeguards. We question, however, whether the phrase "qualitative" safeguards is sufficiently precise and descriptive of what is intended. Moreover, we note that the application of such techniques would be subject to mutual agreement with the state concerned. We agree that such mutual agreement may be appropriate when instruments or containment devices are to be actually installed in or attached to the equipment belonging to the state concerned. However, we would normally expect the state concerned to welcome the use of such techniques bearing in mind the advantages just cited.