

March 7, 1978

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20545

SECY-78-135

INFORMATION REPORT

THIS DOCUMENT HAS BEEN DECLASSIFIED UNDER
THE PROVISIONS OF EO 12958 OF 11/17/95

By Authority of *[Signature]*

(Declassification Authority/Number)

Date of Declassification *2/17/2006*

For: The Commissioners

From: James R. Shea, Director
Office of International Programs

Thru: Executive Director for Operations *[Signature]*

Subject: BRIEFINGS BY SVEIN THORSTENSEN, HEAD OF THE EURATOM
SECTION OF THE IAEA DIVISION OF SAFEGUARDS OPERATIONS

Purpose: To provide to the Commission a staff report on the
subject briefing, as requested by Commissioner Gilinsky.

Discussion: The attached report, requested by Commissioner Gilinsky,
summarizes NRC staff notes and recollections on briefings
conducted by Mr. Svein Thorstensen, Head of the Euratom
Section of the IAEA Division of Safeguards Operations,
during a visit to Washington December 12-13, 1977. The
report is classified to comply with Mr. Thorstensen's
request that his views be held in confidence.

Three sessions, involving personnel from State, ACDA, DOE,
NRC, were scheduled as follows:

1. An overview briefing on IAEA safeguards intended
for U.S. government personnel not familiar with
the subject area.
2. A detailed briefing and discussion on the current
status and principal issues connected with IAEA
safeguards, intended for U.S. staff-level personnel
having safeguards-related responsibilities.
3. A briefing on the current status and principal issues
connected with IAEA safeguards, intended for U.S.
senior-level personnel having safeguards-related
responsibilities.

Contact:
H.S. Schechter, Jr.
192-8155
NATIONAL SECURITY
INFORMATION

Unauthorized Disclosure Subject To
Criminal Sanctions.

OFFICIAL USE ONLY

RETURN

SUBJECT TO GENERAL DECLASSIFICATION SCHEDULE
EFFECTIVE ORDER 11658 OF 11/17/95
AT TWO YEAR INTERVALS AND DECLASSIFIED ON DEC

1984

(insert year)



U.S. PAC Declassification Review	
DOC ID: <u>685013</u>	DETERMINATION (CIRCLE NUMBER(S))
CLASS: <u>8470</u>	1. CLASSIFIED PER NND
SECRET <u>TOP SECRET</u>	2. CLASSIFIED PER NND TO:
DATE: _____	3. CONTAINS UNCLASSIFIED INFO
REVIEWER: _____	4. COPIES TO:
REASON: <u>IS</u>	☒ DECLASSIFIED
	5. CLASSIFIED INFO BRACKETED
	7. OTHER (SPECIFY):



Discussion: Major areas addressed by Mr. Thorstensen were the following:

- Euratom-IAEA Safeguards Negotiations
- Current IAEA Safeguards Activities
- IAEA Safeguards Resources Availability

Mr. Thorstensen indicated his own strong support for the U.S. position regarding international safeguards, and stressed that U.S. pressure on the IAEA Board of Governors may be necessary to gain acceptance for more effective safeguards.

He noted that, in his opinion, the agency has discharged it's mandate well; if more is required, a change in mandate should be considered. He repeatedly observed that the agency has to live by its statutes, and that it can be only as effective as its members want it to be.

His manner of presentation and the answers he gave to questions from the audience appeared to be very frank and open.

NRC personnel attended all sessions, with Commission-level representation at the third session. The enclosed summary is based on staff notes.

Coordination: No formal coordination is required. NMSS staff inputs have been included in the report, and NMSS has reviewed the final product.

James R. Shea
James R. Shea, Director
Office of International Programs

Enclosure:
Report on briefings
conducted by Thorstensen

DISTRIBUTION:
Commissioners
Commission Staff Offices
Exec. Dir. for Operations
Secretariat

OFFICIAL USE ONLY

[REDACTED]

SUMMARY OF DECEMBER 12-13 BRIEFINGS BY SVEIN THORSTENSEN
OF IAEA ON IAEA-EURATOM AGREEMENT AND IAEA SAFEGUARDS ACTIVITIES

EURATOM-IAEA Safeguards Negotiations

In the series of three briefings, Mr. Thorstensen primarily reviewed the background and current status of the IAEA-EURATOM safeguards negotiations and basically covered the same material in all three briefings. He reviewed some of the material discussed before the Board meeting in September and indicated that facility attachments for all EURATOM facilities were to be prepared within 90 days. He indicated, however, that he did not believe this to be feasible within the allocated time frame. Other matters noted by Mr. Thorstensen are discussed below.

One of the difficulties in implementing the IAEA-EURATOM agreement was caused by EURATOM, which wanted only spot-checks to be performed by the IAEA or something less than full verification inspections. The IAEA turned this down because it would not be consistent with the safeguards clauses present in other agreements. A compromise seems to be in the offing: namely, in order not to burden the operators, EURATOM may perform partial inspections rather than complete verification. Examples were worked out between EURATOM and IAEA safeguards personnel. However, any agreement would have to follow the standard NPT safeguards approach.

There appears to be a divergence of views on what really happened at the September Board meeting. EURATOM claims that their position with respect to inspections was accepted by the Board; the safeguards section of IAEA claims that the NPT viewpoint was the one finally agreed upon at the Board. It seemed to him that EURATOM may have been posturing for home consumption since IAEA inspections had been sold to the Bundestag as spot-checks.

Thorstensen referred to some problems or lack of agreement that arose at the technical implementation session regarding how to put the agreement into effect. One of the issues alluded to was the question of spot-checks and the general feeling was that performing spot-checks may not be adequate to verify compliance. There seems to be a consensus to press for full safeguards control of all reprocessing facilities. This marks a departure from the earlier (1971) terms where only limited numbers of man-days were allocated for these inspections.

His own view was to adopt a joint EURATOM-IAEA team approach to conduct these inspections. It seemed that the Russians want to kill the EURATOM inspectorate and are at odds with the IAEA on this matter. EURATOM, at the same time, is also strongly opposing the IAEA inspectorate since it would imply a departure from the spot-check approach which it supports. However, it appears that EURATOM may adjust to the full control requirement of the IAEA.

OFFICIAL USE ONLY

[REDACTED]

Another major issue is the inspection of LWR power plants. The problem here has to do with the number of man-days per year available to perform this function. It seems that the IAEA had set aside about 2.5 man-days every year for each power reactor. This does not appear to be enough. It was finally agreed that the IAEA would provide from 7 to 9 man-days per year while EURATOM would provide from 14 to 15 man-days per year. It was hoped that the IAEA would be able to draw from its smaller number of inspection man-days per year the same conclusions as the EURATOM inspectors would be able to draw from their inspections. EURATOM seems to disagree with IAEA's desire to draw independent conclusions. Apparently, it would like to do the analysis of the inspection data and then feed conclusions to the IAEA. The issue, apparently, remained unresolved and was moved up to the full Board. Some of the principal players involved included Rometsch, Fisher, Williams, and others.

On the subject of detection times, he mentioned that the current 6 months detection period used by the IAEA should go down to a three-month period. Some of the difficulties in detection times referred to by Mr. Thorstensen include the periods of two months, six months, and one year that are specified in various safeguards requirements. One of the problems associated with the longer detection times relates to the surveillance camera films and their replacement.

The subject of detection times has antagonized the Soviet Union, who criticized Rometsch and Fisher by name in the last Board meeting. Thorstensen thinks that a specific reference in the SSIR to the two-month detection requirement for LWRs was a major mistake that should have been avoided in order to prevent a direct confrontation with the Soviet Union on this issue. He pointed out that while the U.S. technical team proposed a technical solution and modified its approach (i.e. was willing to relax a little bit on the detection time stringency) the Soviet Union position became even more hardened and they rejected the U.S. modified approach outright. The Inspector General sent a letter to Williams on November 15 in which he aired all the issues regarding safeguards for LWRs. Now they are awaiting a response from the Council of Ministers. (Response noted in cable Brussels 19145 dated 12/21/77.) There seems to be a major concern by the Soviet Union, which believes that the U.S. is concocting a deal with EURATOM, while at the same time another deal is being cooked up between the IAEA and EURATOM. In all of these alleged deals the Soviet Union feels isolated and left out from the decision-making process.

He alluded to the Soviet Union's belief in the existence of a U.S. letter in which some easing of the stringency of safeguards requirements for EURATOM was proposed. This suspected letter has the Soviet Union annoyed and suspicious about everybody else in the safeguards community. He pointed out that in principle the IAEA cannot possibly proceed in its activities as long as the U.S., the Soviet Union, and all of the suppliers are not able to come to some kind of an agreement. He mentioned that Williams has instructed Schleicher

~~CONFIDENTIAL~~

3

to cooperate with respect to the February Board of Governors meeting and at that time to push hard for an agreement.

Current IAEA Safeguards Activities

On the subject of safeguards in general, Mr. Thorstensen pointed out that IAEA statutes do not require the agency to prevent the theft of nuclear materials; its mandate requires it only to deter diversion through early detection of MUF (material unaccounted for). He indicated that, on the whole, the agency has discharged its mandate well and that if more is required of it, a change in mandate might be necessary. He stressed that the agency has to live by its statutes, and that it is only as effective as its members want it to be.

Mr. Thorstensen observed that the SSIR confirmed the general validity of the present safeguards targets, but that the targets need to be reviewed and quantified to allow reaching of conclusions on system effectiveness.

Mr. Thorstensen outlined some of the IAEA safeguards activities now underway. Among these he enumerated some short-term problems which he would present at the February meeting with EURATOM inspectors. He mentioned such items as LWRs, in regards to which the U.S., Soviet Union, and the suppliers should firm up a common line and agree on measures. He talked about reprocessing plants and indicated that the Germans (in particular their representatives, Gupta and Heil) want the meeting to take place at a reprocessing facility in Western Europe and to include also the operators in that meeting. He pointed out that the IAEA refused negotiations with German authorities in the presence of plant operators.

He identified a few major issues now before the safeguards community:

- (1) The problem of systematic versus random errors in measurement. He indicated that Gupta doesn't believe that operators should perform this task and make the information available to the Agency, but rather that the Agency should carry out these tests or investigations.
- (2) The problem of the ten-day detection time requirements, which are to be imposed to detect 8 kilograms of plutonium and determine whether any diversion has taken place anywhere within the plant; also, he pointed out that to do this, one must have access to all other parts of the plant. EURATOM claims that such a requirement of access to other parts of the plant would involve or would introduce a new modification to the previously-agreed-upon July agreement and balked at this suggestion. Again the principals seem to be Gupta and Schleicher, with the focus on the German WAK reprocessing facility. It seems that any presumed agreement is thus again wide open.

~~CONFIDENTIAL~~

OFFICIAL USE ONLY

[REDACTED]

On another matter, there is a question as to whether the entire ITREC reprocessing facility in Italy, which involves numerous hot cells, should be safeguarded, or only that loop currently in operation. This loop seems to be a small part of the whole facility and deals only with thorium cycle. The whole facility is very difficult to safeguard because nearly all of the processing is done via remotely controlled equipment and could be used to divert material without inspectors for the operational loop becoming aware of it.

Mr. Thorstensen observed that good progress was being made in the Convention on Physical Security. However, in view of the absence of a physical security role in IAEA's present mandate, the agency cannot verify compliance.

IAEA Safeguards Resources Availability

Another issue that has led to a disagreement between EURATOM and the IAEA concerns whether to use black box approaches based on technology, or physically to get into the process areas and perform hands-on inspections. It seems that EURATOM argues it is absolutely necessary to get into the facilities, particularly the process areas and argues that the IAEA should back it on this matter. Thorstensen commented that IAEA resource limitations would make it difficult for him to accomplish this.

On the subject of LEU, for example, he noted that complete inspections are not possible. It is, at best, possible to make quality assurance checks rather than complete safeguard checks. He pointed out that continuous inspections would be necessary if one expects to be able to draw quantitative conclusions about diversion of material or materials missing. Under the current allocation of inspection man-days, namely, 60 man-days a year for the IAEA and 60 man-days per year for EURATOM, that would not be feasible.

Another subject discussed was the need for short-term technical support for the safeguards sections of the IAEA and EURATOM. This would include equipment, evaluation capability, problem-solving capability, etc. He indicated that Jim Tape of Los Alamos provided some technical papers to EURATOM.

He mentioned again his own manpower problems caused by budgetary constraints. He noted that he now has 19 people in the EURATOM section. These would have to be augmented by six people immediately in February and by four or five more people later in 1978. He spelled out the following requirements: at least 43-44 people for inspection purposes and an additional ten people as soon as the United Kingdom offer comes in. (He indicated the U.K. was anxious to have its offer implemented.) If the EURATOM negotiation task is also included, he will need additional personnel over and above those indicated above. He volunteered to provide the U.S. Mission in Vienna with a complete list of facilities and the required number of inspectors to carry out this function adequately. He stressed that if additional manpower would not become available as needed, he would be forced to cut back across the board many of the present and projected inspection activities.

[REDACTED] OFFICIAL USE ONLY

[REDACTED]

With the possible exception noted below, agreement seems to have been reached in reporting procedures for research reactors. Regarding research facilities, the IAEA would like to split the facility areas into several material balance areas and not to treat the whole facility as one area as requested by EURATOM. That seems to be another area of disagreement. The IAEA is currently planning on having one person "on call" for continuous inspection at the Karlsruhe fast critical assembly.

He mentioned briefly the following working groups currently active in the IAEA safeguards area: design information, research reactors, outside facilities, instrumentation and standards (coordinating equipment), fuel fabrication plants, reprocessing plants, accuracy and precision analysis.

With regard to the upcoming SAGSI meeting, he indicated that it would be a crucial meeting because it will have to wrestle with the threat detection time of ten days which is before the SAGSI. (He asked informally for U.S. guidance on this subject prior to the next Board of Governors meeting.) He pointed out that the current disagreement on the issue of detection times between the Soviet Union and the U.S. may possibly also lead to further disagreement and opposition from the LDCs who seem to feel that the polarization of the superpowers can give them a greater voice in setting safeguard requirements and other matters.

Mr. Thorstensen repeatedly remarked that U.S. technical assistance is very important to the IAEA's continuing viability. The technical assistance, he stressed, was more important than actual dollar contributions or "gifts in kind" supplied.

[REDACTED] OFFICIAL USE ONLY