

W. M. Fullerton, Chief European Branch, DIA

April 12, 1963

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PROPOSED FRENCH-UNITED KINGDOM COOPERATION IN CRITICALITY STUDIES.

Please refer to your memorardum of April 11 requesting my comments on a letter from F. Perrin, CEA, to Tir William Penney, U.K. AEA, concerning a cooperative program of exchanging data from critical experiments.

The experiments described in 1(b), (c) and (d) and 2(a) and (b) will result in basic and unclassified criticality data. I am not familiar with the "Plutonium and Uranium 235 Programmes on Proserpine" mentioned in 1(a).

Basic criticality data are in the unclassified literature. The subject experiments relate to solutions or alloy plates, and the application of such data to peaceful or military pursuits is largely a matter of choice.

I suggest that you ascertain from the Production Division whether the more refined criticality data would benefit the gaseous diffusion efforts of the French CEA.

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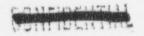
JOINT RESOLUTION

- Whereas the development of nuclear power has led to various efforts throughout the world to institute appropriate mechanisms for assuring prompt compensation for any nuclear damages in the event of a nuclear incident;
- Whereas the United States has been exercising leadership in developing legislative measures designed to assure prompt and equitable disposition of claims in the event a nuclear incident should arise out of the operation of nuclear equipment by the United States, as is evidenced in particular by Sections 107 and 170 of the Atomic Energy Act of 1954, as amended;
- Whereas an assurance of prompt availability of compensation for damage in the unlikely event of a nuclear incident arising out of the operation of a U. S. nuclear powered warship would, in conjunction with the unparalled safety record that has been achieved by U.S. nuclear powered warships in their operation throughout the world, facilitate the free movement of the U.S. nuclear powered fleet;
- Whereas it is vital to the national security to gain the ready acceptance of U.S. nuclear powered warships into friendly foreign ports and harbors;
- Whereas existing legislation of the United States does not provide an adequate basis for extending appropriate assurances regarding prompt compensation for damages arising out of a nuclear incident involving a U.S. nuclear powered warship.

Now, therefore, be it

RESOLVED BY THE SENATE AND HOUSE OF REPRESENTATIVES OF THE UNITED STATES OF AMERICA IN CONGRESS ASSEMBLED, that it is the policy of the United States that it will pay, subject to such terms and conditions as the President may prescribe, claims or judgments for bodily injury, death or damage to or loss of real or personal property proven to have resulted from a nuclear incident arising out of the operation of a U.S. nuclear powered warsnip; Provided that the injury, death, damage or loss was not caused by the act of an armed force engaged in combat or as a result or civil insurrection. The President may authorize the payment of such claims or judgments from any contingency funds available to the Government or may certify such claims or judgments to the Congress for appropriation of the necessary funds.

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Commissioners' Meeting with R. Hirsch, B. Goldschmidt, and M. Pascal of the French CEA

1. Plowshare

We have been informed by the French Embassy that Mr. Hirsch may raise this general subject although we do not know in what particular context. There are two possibilities which are not mutually exclusive:

- (a) Mr. Hirsch may inquire about the possibility of developing some type of CEA-USAEC cooperative exchange in the field of peaceful nuclear explosions in which the CEA would provide us with information on related aspects of the French weapons program for information on our own Plowshare program.
- (b) Mr. Hirsch also might note the current study that the IAEA actively has underway to define the role that the Agency should assume in the field of nuclear explosions and may wish to discuss further developments relating to the IAFA study. At the recent February meeting of the IAEA Board of Governors, the Director General was requested to circulate to all member states a preliminary analysis which he already has prepared on the subject of the Agency's role. Moreover, it was agreed that a committee comprised of all Board and interested non-Board members would meet in Vienna to review the question further. The precise timing of this meeting will be subject to further consultations. As a background paper for the current study, Dr. Eklund also was asked to prepare a paper summarizing where the technology of peaceful nuclear explosions now stands and the remaining experimental work that needs to be performed. During the recent IARA Board meeting in February, Dr. Goldschmidt informed a member of the U.S. delegation that the CEA was considering the possibility of making some information on French underground tests available to the IAFA for incorporation in the IAFA background paper concerning the status of PNE technology. The French apparently have performed some such explosions in different media than we have.

In the event Mr. Hirsch suggests a program of Franco-U.S. bilateral cooperation in this area, it is recommended that the Commission reserve its position and indicate that we would have to study this question further. Although the results of the U.S. Plowshare program are generally unclassified, we can foresee serious political problems associated with our cooperating in this field with a country that has neither adhered to the Limited Test Pan Treaty nor signed the NPT. While there may be arguments of the Limited Test Pan Treaty nor signed the NPT. While there may be

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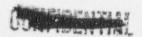
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would be unwise to give the French any encouragement on this point at this time.

On the other hand, we see no reason why the CEA should not be encouraged to make the appropriate results from the French underground test program available to IAEA if it believes they have a bearing in assessing the current status of PNE technology. France is a member of the IAEA and is free to make available to the Agency information on such aspects of its program as it deems appropriate.





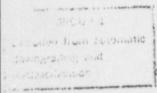
2. Views on Uranium Enrichment

The French have requested an exchange of views on U.S. and French policy toward the entry of additional nations into the uranium enrichment field.

The French have been quite negative and skeptical about the UK tripartite German, Dutch, UK centrifuge project. They have based this skepticism on alleged doubts about the technical and economic feasibility of employing the centrifuge (which they characterize as still unproven) for U-235 production purposes at this time. Moreover, they have expressed strong concerns in private conversations with U.S. officials about any prospect that the project might enhance Commany's ability to acquire an independent production capability. Additionally, it seems clear that there is a possible element of "sour grapes" in the French attitude to the project since it obviously will serve to jeopardize, if not kill, any plans France might have to construct a new diffusion plant based on French technology to satisfy all or a fraction of Europe's requirements. (There have been some inconclusive rumors, some very recently, that the French have been invited to participate in the tripartite project. However, this is dubious and our recent conversations in London clearly suggest that the UK, the FRG and the Netherlands clearly have deferred, for the time being, extending any invitations to join the project to other countries.)

In the course of our conversations Messrs. Hirsch and Goldschmidt may reiterate the French reservations about the tripartite venture and ask us for our views. Their position, on the project, obviously will be strengthened if they can quote us as being negative towards the project. Therefore if the subject comes up it is recommended that we take the following basically non-committal line which conforms to contingency statements previously approved by the Commission for any public discussions on this item:

- (1) The fact that the West Europeans have been discussing a cooperative centrifuge project has, of course, been of interest to the U.S. Moreover, the fact that European research and development in this field has been conducted also is well known as is the technical feasibility of the process.
- (2) The USAEC basically is in no position to comment on the economic attractiveness of employing the centrifuge in the European context since this depends on local conditions. We can only talk about our own situation in this regard. In our view the centrifuge is not economically attractive within U.S. conditions and that our cheapest incremental capacity can be obtained by improving and expanding our own gaseous diffusion capacity.





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(3) We have, of course, also followed centrifuge developments from the standpoint of their impact on the problem of proliferation. We do not believe the proposed tripartite venture is inconsistent with the Non-Proliferation Treaty since the NPT does not preclude such developments provided the nuclear materials in these plants and their products are adequately safeguarded. We continue to be hopeful that the FRG will sign the NPT and that it will be feasible to conclude a satisfactory safeguards agreement between the IAEA and Euratom. Pending the conclusion of such a satisfactory agreement we assume that Euratom safeguards will apply to any centrifuge activities in the territories of the Euratom states.

It is not recommended that we volunteer that we have held any discussions with the UK on this subject. However, if the French inquire directly as to whether such talks have been held, it is suggested that we say the following:

"In keeping with our long-established practice of consulting with the British on joint classification policies* we have over the recent months consulted with the UK on the classification of the centrifuge and related subjects. Both we and the British share a common classification policy in this area with the Germans and Dutch. It is the view of the USAEC that the technology in this field should continue to remain classified for the time being." For the foreseeable future?



^{*} A policy reflected in our 1955 Civil Agreement for Cooperation with the UK.

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3. Philosophy of Nuclear Power Development

Mr. Hirsch may wish to explore the relationship of government to industry at the present in the U.S. He will be furnished staff briefings relating to programmatic, reactor licensing and licensing board activities of the USAEC with industry and during his visit will be talking to several commercial reactor vendors but would undoubtedly appreciate observations of the Commissioners in this vital area.

It has become apparent to the CEA and particularly the EDF that gas-cooled natural uranium fueld reactors are not economically competitive with water cooled slightly enriched U.S. reactors. In addition to their gas-cooled graphite moderated plants, France has built a D₂O moderated gas-cooled reactor (EL-4) but has no exportable product in the power reactor field. There have been recent indications c interest in sizeable (700 MWe) PW and BW plants also in the Canadian CANDU heavy water moderated natural uranium fueled reactors.

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4. Safeguards in Fabrication Plants

In attempting to settle on an implementation of fuel fabrication safeguards that is meaningful and acceptable to member states and suppliers (mainly the U.S.) Euratom has had considerable difficulty. The Commission of the European Communities, and all member nations but France, are agreeable to the concept of continuous or "resident" inspection. France has voiced strong objection to the concept and feels the U.S. has rammed it down Euratom's throat. Their mildest posture is to recommend that Euratom accept the concept, under protest, and apply it only to U.S.-supplied fuel and upon U.S. insistence.

A recent tack taken by Furatom is to attempt to skirt at least the terminology of resident inspection and suggest a three-level scheme of monitoring fuel fabrication and reprocessing plants. This scheme makes the degree of intensity of surveillance a function of the fuel quantity handled. The three levels are:

- 1. Essentially continuous or daily checking;
- 2. Monitoring on an ad hoc basis;
- 3. Annual inventory checks.

Three approaches to the problem of gaining acceptance of the inspection requirements are being considered by Euratom. These are:

- Application for a trial (18 months) period;
- 2. Application only to U.S.-supplied material;
- 3. Application on a case-by-case basis to U.S.-supplied material. If the recipient did not agree to continuous inspection prior to material receipt, the U.S. could elect not to supply.

From the U.S. point of view one first of these is the most desirable. It temporarily achieves the inspection we feel is requisite, it avoids treating member nations differently, it puts Euratom in a somewhat better position for IAEA Safeguards negotiations, and it provides time for future developments to influence the position of Euratom, member states and the U.S.

5. U.S.-French Technical Cooperation

Senior technical staff of the USAEC and the French CEA had extensive discussions in Washington on November 13-14, 1968. The purpose of these discussions was to provide an opportunity for people with similar technical program interests to get better acquainted and to identify specific areas of mutual interest. Major program areas covered included reactor technology, reactor systems, fuel reprocessing, waste management, physical research, isotopes development, radiolgical protection and safety, regulatory procedures, and nuclear materials management. Summary material covering the various discussions was assembled and transmitted in draft form to Dr. Goldschmidt, Director of External Relations and Programs of the CEA. The discussions identified a number of possible future visits, exchanges and other activities. One follow-up activity concerning more detailed discussions on nuclear material management is being planned for October 1969.

Cooperation in the field of fast breeder reactor development is proceeding with visits to France by U.S. program personnel in late March and in April. Arrangements for discussions are being made by the Scientific Representative in Paris directly with the CEA. This is consistent with the desires of Euratom representatives in Brussels and is indicative of the current uncertain state of the U.S.-Euratom technical exchange arrangement on fast breeder reactors arising out of the uncertain status of Euratom.



6. French Views on Euratom-IAEA Verification (To Be Raised in Informal Talks)

We understand that the Germans have been making a vigorous effort to persuade the Dutch and the French to agree to the initiation of preliminary talks between the Euratom Commission and the Community's member states on the character of the position that Euratom should adopt during the prespective NPT safeguards negotiations with the TAFA. This obviously would be all to Germany's advantage, bearing in mind she has not yet signed the NPT. We understand that the Dutch are agreeable to the initiation of these discussions but that the French have not as yet agreed. The matter was reportedly raised, on Monday, March 10, 1969, by Brandt with Debre but we do not as yet know the results. The Germans reportedly intend to have the Chancellor take the matter up with de Gaulle if necessary to obtain a "green light."

The staff believes it would be useful for the Commissioners and the staff to take informal private soundings with Messrs. Hirsch and Goldschmidt on the current French attitude on this subject. We should try to ascertain: (a) when the French believe the Euratom Commission should be given a formal mandate to submit recommendations to the member states on this subject; (b) when the French Government is likely to give its approval to the initiation of negotiations between the Euratom Commission and the IAEA or what position France is likely to take in this connection; and (c) the detailed character of any French attitudes concerning the nature of the safeguards agreement that should be concluded between the IAEA and Euratom.

It is unlikely to we shall obtain much insight into detailed French views on this subject. On the other hand the French might be prepared to state their general views on the probable time-scale for the development of a common Euratom position and the initiation of Euratom-TAEA negotiations.

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