

Study 51-58, B 1296, F1

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R + D I Peace-time Uses
of A E with other Nations

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February 17, 1955

MEMORANDUM TO: Mr. Gerard C. Smith
Department of State

SUBJECT: STAFF COMMENTS ON PROPOSED NOTE TO THE U.S.S.R.

We have studied the draft reply to the Soviet aide-memoire of November 29, 1954, and have prepared a suggested revision of paragraph 3. For your convenience, I have attached the complete draft as revised by the Commission.

Pursuant to your suggestion, the staff has prepared, and I have attached a draft agenda which might be transmitted to the U.S.S.R., with explanatory notes for the information of the Department of State.

The attached documents have the concurrence of the Commission. If there are any substantive changes made in the draft note prior to its dispatch, we would appreciate being consulted.

John A. Hall

Enclosures
LIX-1975-1 Draft 1 dtd 2/7/55 -
1 of 4A Agenda

CC: WBMCCool/Secretariat w/agenda.

See memo from Hall to Commissioner dated 2-7-55

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1ST REVIEW DATE: 7/13/11	
AUTHORITY: 49 CFR 1.101	
NAME: R.H. Fuchs	
2ND REVIEW DATE: 1/18/14	
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No. 207

AGENDA FOR DISCUSSION ON SAFEGUARDING PEACEFUL USES OF ATOMIC ENERGY

Safeguarding Peaceful Uses of Atomic Energy

To discuss the safeguards required for the following peaceful uses of atomic energy under an international atomic energy agency:

1. Research and Development

- a. Reactors for production of radioisotopes for use in science, medicine, agriculture, and industry.
- b. Reactors to provide neutron irradiations for scientific research and for testing materials and components for power reactors.
- c. Reactors as pilot plants for the development and demonstration of economic atomic power.

2. Large-Scale Utilization of Atomic Power

- a. Power reactors using as fuel either natural uranium or uranium partially enriched in U-235, but not containing thorium.
- b. Power reactors using as fuel either plutonium, U-233, or uranium highly enriched in U-235, but not containing thorium or significant amounts of U-238.
- c. Reactors containing the fertile materials U-238 or thorium for the specific purpose of producing fissionable material in addition to power.

Safeguards are to be considered in relation to the design and construction of reactors, allocation and preparation of critical materials, operation of reactors, and processing of irradiated materials.

For the Information of the State Department

In regard to the above agenda, the size and number of research and development reactors listed under item 1 should be relatively small. Stocks of weapon materials will not be appreciably increased and may be slightly reduced by the operation of these reactors. The international agency will have to exercise some supervision of the reactors

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and control over the preparation and extraction of fissionable materials to insure that these materials are not diverted for unauthorized purposes.

The large-scale utilization of atomic power does pose problems of adequate safeguards, whenever that stage arrives. In the case of reactors listed as item 2a above, where natural uranium or uranium partially enriched in U-235 is used as fuel, plutonium is produced. Fuel would have to be removed from the reactor and processed in order to obtain this plutonium. Safeguards to prevent diversion of plutonium will be needed. If the fuel is irradiated for a long time for reasons of convenience and economy, some of the plutonium will be consumed in the reactor and the weapon value of the rest may be reduced. Precautions will have to be taken to insure that thorium or additional U-238 is not surreptitiously placed in the reactor for the production of U-233 or plutonium from excess reactivity.

In the case of reactors listed as item 2b above, where plutonium, U-233, or uranium highly enriched in U-235 is used as fuel, fissionable material will be consumed and stocks of weapon material will be correspondingly reduced. The fuel will also be radioactively contaminated and would have to be processed before it again became suitable for use in weapons. Safeguards will have to prevent diversion of the fuel during all stages of preparation, irradiation, and processing and prevent surreptitious insertion of fertile materials into the reactor.

In the case of dual-purpose reactors listed as item 2c above, plutonium or U-233 is produced and safeguards will have to prevent diversion of these materials. Whether or not more fissionable material is produced than is consumed will depend on the design and operation of the reactor and the materials used.

It is clear that the international agency will at least have to exercise very close supervision over design, construction, and operation of large power reactors and even more stringent controls over preparation and extraction of fissionable materials. Many of the control features described in Chapters 4 and 5 of the Second Report of the United Nations Atomic Energy Commission will be necessary.

U.S. Atomic Energy Commission
Office of the Director
Washington, D.C.
MAY 1952

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RECORDS SECTION

MAY 1952

U.S. ATOMIC ENERGY COMMISSION