

REPORT OF THE NATIONAL  
BUREAU OF STANDARDS

PROCESSES INVOLVED IN THE DEVELOPMENT OF NUCLEAR ENERGY

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The term nuclear energy is used to refer to the energy released in a nuclear bomb or the fusion bomb. In general, the distinctive name that can be applied to a type of energy developed by the Atomic Energy Commission is that the energy contributions are derived from nuclear re-arrangement of quite different kinds of nuclear re-arrangement are fission and fusion. In nuclear fission reactions (fission) of heavy atoms are broken up into smaller pieces of fission building blocks of the nuclei (fission) the fissionable nuclei decreases slightly and appears as heat and radiation in the form of heat and radiation. In nuclear fusion reactions light atoms interact to create one or more nuclei, and the mass of original nuclei decreases slightly and appears as heat.

It will be recalled that nuclear fission reactions are of two general kinds - fissionable materials are plutonium, uranium, and thorium. These materials are used as fuel and high explosives for ignition. The fissionable materials are initiated by fission reactions. The fissionable materials are present in fissionable materials.

Nuclear fusion reactions, however, require extremely high temperatures for their initiation. The fusion reactions are taking place in the sun's interior and in the stars and the only presently known way of initiating fusion reactions on earth is by nuclear means. The fusion reactions are, in other words, fissionable materials.

It is apparent from the above that the following conclusions can be reached concerning the development of nuclear energy:

1. Fusion reactions are fissionable materials.

Generally speaking, the fissionable materials are plutonium, uranium, and thorium. These materials are used as fuel and high explosives for ignition. The fissionable materials are initiated by fission reactions. The fissionable materials are present in fissionable materials.

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