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100-104-70

December 13, 1974

SECY-75-417A

COMMISSIONER ACTION

Subject: DECLASSIFICATION OF LASER FUSION TECHNOLOGY

We plan to distribute the attached announcement on the declassification of laser fusion technology to news media on Wednesday, December 18.

*John A. Harris*

John A. Harris, Director  
Office of Information Services

NOTE: Commissioner comments should be provided directly to the Office of Information Services by c.o.b., Tuesday, December 17, 1974.

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T. Siler, DD, BY DATE: 2/7/2004

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## AEC DECLASSIFIES ADDITIONAL ASPECTS OF LASER FUSION RESEARCH

With an eye toward removing as many obstacles as possible in achieving fusion power and to allow free discussion of work in progress, the Atomic Energy Commission has declassified additional aspects of its laser-fusion research.

This action was taken after detailed study by the Commission staff together with experts both from within the AEC's laboratories and from industry. About 95 percent of the information in the laser-fusion field is now available to the public.

Laser-fusion concepts being investigated in AEC laboratories include laser and electron-beam fusion. Both rely upon the inertia of material which is caused to implode toward the center of a spherical geometry, resulting in compression of heavy hydrogen fuel pellets to densities about 1,000 times the density of normal solids and in heating to a fusion reaction. The energy release time for pellets may be much less than a billionth of a second. The energy is released as X rays and high velocity sub-atomic particles which can be converted to heat by absorption in the walls of a surrounding chamber. The heat then could be used to generate steam for conversion to electricity or for chemical processing. There is virtually an unlimited supply of heavy hydrogen in all water.

The laser-fusion research effort consists of developing powerful lasers known to be needed for power application and of developing small pellets of thermonuclear or heavy-hydrogen fuel from which power production could actually take place. The design and development of lasers for use in laser fusion is unclassified.

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The new guidance permits publication of theoretical and experimental studies of the microscopic fuel pellets which are filled with heavy hydrogen and used as targets in the laser-fusion process. These pellets may be as small as 30 microns or as large as 300 microns, and hundreds of them can fit on the head of a pin (a micron is a millionth of a meter, which is slightly longer than a yard). These pellets can be made from glass spheres which are used widely by industry in luminous tape for bumpers and for reflective highway signs, and to coat paper used in duplicating machines.

The most recent declassification guidance specifically allows studies of the design and performance of these targets, and multiple dimension calculations of them.