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STATEMENT ON

THE CONSOLIDATED FUEL REPROCESSING PROGRAM

by

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ASSOCIATE DIRECTOR
NUCLEAR AND ENGINEERING TECHNOLOGIES
OAK RIDGE NATIONAL LABORATORY

DISCLAIMER

Presented to

SUBCOMMITTEE ON ENERGY RESEARCH AND PRODUCTION
U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON SCIENCE AND TECHNOLOGY
MARILYN LLOYD, CHAIRMAN

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Madam Chairman and Members of the Subcommittee, thank you for the privilege of presenting testimony concerning the Consolidated Fuel Reprocessing Program. I am Donald B. Trauger, Associate Director for Nuclear and Engineering Technologies of the Oak Ridge National Laboratory.

Our Laboratory has the lead role for the United States in nuclear fuel reprocessing technology development. In this capacity, we have chosen several objectives for future plant design. Foremost are:

Reduced Radiation Exposure to Workers
Minimal Environmental Impact
Improved Plant Operation and Maintenance
Improved Accountability
No Plutonium Diversion
Reduced Overall Capital and Operating Cost

These objectives lead to a plant with totally remote operation including sampling and maintenance. The operator would have no hands-on access to the fissile material which is fully protected. The specification calls for radioactive effluents to be reduced to solids for removal. Thus, the process cells would be essentially impenetrable except for airlocks which admit spent fuel and remove product and waste. The program would provide for the eventual reprocessing technology needs for breeder reactors; however, most of this applies equally to light water reactor fuel and in a large measure to reprocessing for all reactor types.

The key to success is in the arrangement of equipment. Remote manipulators operating from a center aisle provide access to equipment mounted on the walls. New manipulator designs provide the operator with a "feel" for actions, and thus improve both operation and maintenance. Removable racks support components, further facilitating repair or modification . Analytical sampling is by robot. Greatly improved TV viewing completes the concept. Such systems when applied to both fuel reprocessing and fuel refabrication provide diversion control for fissile materials from irradiated fuel to finished fuel elements. Remote coupling of information systems offer potential proliferation monitoring for plants placed under International Atomic Energy Agency control.

The Breeder Reactor Engineering Test called "BRET" has been designed to perform a key role in demonstrating advanced reprocessing technology. It has been scheduled to be available to reprocess spent fuel from the Fast Flux Test Facility. Fortunately, the existing Fuels and Materials Examination Facility at Hanford, Washington, will accommodate BRET at a considerable saving in cost. Conceptual designs and detailed plans exist for modification of the facility and for the necessary process and control equipment for BRET. The Hanford Engineering Development Laboratory and the Oak Ridge National Laboratory have worked in close coordination on this project and the staff is in place to move forward. We strongly endorse BRET.

Technology development in the program at ORNL also has made good progress and the Integrated Equipment Test facility is being phased into operation. This facility will test key features of equipment for BRET and will accommodate larger plant components than are possible or needed in BRET. The two facilities are complementary and together should provide an adequate base of experience for the design of fully modern fuel reprocessing plants.

Cancellation of the Clinch River Reactor and extension of the Breeder Program schedule has necessitated re-examination of scheduling for the fuel reprocessing program. This includes international factors. Advanced reactors, largely breeders, have been pursued in many countries. However, fuel reprocessing programs lag well behind the reactors. The Consolidated Fuel Reprocessing Program if carried out as planned, including BRET, would put the United States in the forefront of this area. Since international cooperation may be vital for the future, this leadership position could be very important. Some elements of cooperation are already in place with the U.K. and Japan.

I particularly emphasize that the principal features of this program and of the BRET facility are appropriate for all reactor types including those for military programs. Incidentally, they also apply in large measure to the handling of other hazardous materials. A considerable investment has been made. The team of experts assembled represents a substantial fraction of the experienced people in the field. Sustained continuation would be cost effective and technologically sound. We recommend that additional funding be provided so that the important objectives of this program can be achieved.