



MAY 15 1979

Department of Energy
Washington, D.C. 20545

Mr. William J. Dircks, Director
Office of Nuclear Materials
Safety and Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Dircks:

Fuel cycle research and development programs within the Department of Energy (DOE) have been supporting the Liquid Metal Fast Breeder Reactor (LMFBR) development program through the development and cold testing of equipment and systems for the reprocessing portion of the LMFBR fuel cycle. In order to provide assurances that LMFBR fuel can be reprocessed in a safe and reliable manner, with minimum adverse environmental impact and a high assurance of safeguards, planning for the fuel cycle development program includes testing of equipment and systems in a full radioactivity environment using irradiated U-Pu/Th-U-233 fuels. Conceptual design has been underway since FY 1976 under the direction of Oak Ridge National Laboratory to define scope of facilities for a Hot Experimental Facility (HEF) to carry out these tests. There have been preliminary discussions on this facility between Clint Bastin of this office and John Roberts of your Fuel Reprocessing and Recycle Branch. However, in order to proceed with environmental study, safety analysis, site selection, further engineering study, etc., more in-depth contact with the NRC is required.

The HEF will be a complete irradiated fuel reprocessing plant and will include fuel receiving and storage, high-level radioactive waste solidification and storage, and other support services. Studies to date have focused on fuels for LMFBRs, but it is considered likely that LWBR fuels will also be accommodated. It is expected that LWR spent fuel will also be reprocessed in the facility to supplement the experimental program fuel feed or augment plutonium supply for breeder reactor development programs. Provision will be made in the facility designs for testing several alternative processes and engineering concepts to improve antiproliferation measures.

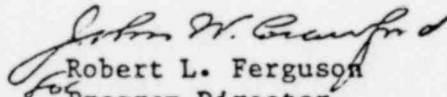
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Studies to date have assumed a facility within the Oak Ridge, Tennessee, area with a nominal capacity of 0.5 metric tons heavy metal (MTHM) per operating day of U-Pu based fuels and 0.2 MTHM/day of Th-U-233 based fuels. Assuming continuation of strategy that provides for continuing development of breeder reactors, we contemplate a request for congressional authorization of architect-engineering funds for the HEF in FY 1981, followed by a request for full construction authorization in FY 1984. Our schedules contemplate facility completion in FY 1991.

We would like to meet with appropriate NRC personnel as soon as mutually convenient to obtain a better appreciation of actions required to achieve an NRC staff review of the HEF, to establish appropriate contacts for resolving potential issues identified in the review, and to define the requirements and schedules for further study. Personnel from our Nuclear Fuel Cycle Programs Branch, Division of Nuclear Power Development, and from Oak Ridge will attend for DOE. Please contact Mr. W. Wade Ballard, Jr., (353-4729) for any additional information you may need and to make final arrangements for the meeting.

Sincerely,


Robert L. Ferguson
Program Director
for Nuclear Energy

cc: Lee V. Gossick, Executive Director
for Operations, USNRC
Robert W. Barber, Chairman, DOE
Ad Hoc Implementation Committee

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