ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

December 18, 1969

Honorable Glenn T. Seaborg
Chairman
U. S. Atomic Energy Commission
Washington, D. C. 20545

Subject: REPORT ON ENRICO FERMI 1

Dear Dr. Seaborg:

At its 116th meeting, December 11-13, 1969, the Advisory Committee on Reactor Safeguards reviewed the preparations by the Power Reactor Development Company (PRDC) for restart of the Enrico Fermi 1 reactor following the fuel melting incident of October 5, 1966. This subject was previously considered at a Subcommittee meeting on November 25, 1969, held at the site at Lagoona Beach, Michigan. During its review, the Committee had the benefit of discussions with representatives of PRDI, Atomic Power Development Associates, Inc., Detroit Edison Company, and the AEC Regulatory Staff. The Committee also had the benefit of the documents listed below. The Committee previously reviewed and approved operation of this reactor at power levels up to 200 MW(t) during its 59th meeting, November 12-14, 1964.

Several plant modifications have been made to prevent fuel melting incidents similar to that of October 5, 1966. These include the installation of flow guards at the inlets of all subassemblies located in the high-coolant-pressure region of the core. The Committee agrees that the installation of these guards represents an improvement in plant safety. During its review, the Committee also discussed other aspects related to plant safety and operation; for example, the newly installed delayed-neutron monitor, the malfunction detection analyzer, the plant emergency plan, the consequences of steam generator failures, and future plans for operation. On this last point PRDC representatives stated that, following core reloading, the reactor would undergo low power and high power tests, terminating in a power demonstration operation at 200 MW(t); the applicant estimates these tests will require about six months.

The applicant has proposed a detection system to ensure that the orifices in the siphon breaker lines are not plugged without detection during reactor operation, since these lines perform a vital function in the unlikely event of a loss-of-coolant accident. The Committee believes that the

applicant need not provide additional siphon breaking capability by removal or replacement of the orifices in the siphon breaker lines prior to or during the life of the fuel proposed for resumption of operation.

While the Committee believes that the suggested modifications permit startup and operation for the power demonstration operation, extensive operation beyond that time period as a fuel test reactor or with a different type of fuel such as an oxide may warrant a more general review encompassing various features of reactor design and operation.

The Committee believes that the Enrico Fermi 1 reactor can resume operations up to a maximum power of 200 MW(t) for the proposed power demonstration operation program without undue risk to the health and safety of the public.

Mr. Harold Etherington did not participate in the Committee's review of this project.

Sincerely yours,

/s/

Stephen H. Hanauer
Chairman

References attached.

References - Enrico Fermi Atomic Power Plant, Unit 1

1. Letter from Power Reactor Development Company, dated March 30, 1967; Report on October 5, 1966 Fuel Damage Incident at Enrico Fermi Atomic Power Plant, Status as of February 24, 1967

2. Letter from Power Reactor Development Company, dated January 8, 1969; Report on Fuel Melting Incident in Enrico Fermi Atomic Power Plant on October 5, 1966, dated December 15, 1968

3. Letter from Power Reactor Development Company, dated August 27, 1969; Additional Information on Fuel Melting Incident, Plans for Startup and Power Ascension, Proposed Changes in Technical Specifications, with Appendices 1 through 16