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

November 12, 1969

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

Subject: CONCEPTUAL DESIGN FOR LARGE HIGH TEMPERATURE GAS-COOLED REACTOR (HTGR)

Dear Dr. Seaborg:

At its 115th meeting, on November 6-8, 1969, the Advisory Committee on Reactor Safeguards reviewed a conceptual design and proposed design bases for an 1100 MWe High Temperature Gas-Cooled Reactor (HTGR). Subcommittee meetings were held in Chicago, Illinois, on January 17, 1969, in La Jolla, California, on March 13-14, 1969, and in Washington, D. C., on September 3, 1969. During its review, the Committee had the benefit of discussions with representatives of Gulf General Atomic Incorporated, the AEC Regulatory Staff, and of the documents listed.

The reactor concept utilizes a helium-cooled, graphite-moderated ceramic fuel core similar to that of the Fort St. Vrain reactor. The reactor core and six primary coolant loops are completely contained in a cylindrical prestressed concrete reactor vessel. The core occupies a central cavity and the steam generators and primary helium circulators occupy six cylindrical cavities located in the walls of the reactor vessel. Two independent emergency core cooling loops are also located in cavities in the vessel wall. A conventional low-leakage containment building similar to those used for pressurized water reactors is provided.

Adequate information was not available for the Committee to make a detailed review of specific design features or details. The design of the prestressed concrete reactor vessel has not been considered.

The Committee believes that there is reasonable assurance that an 1100 MWe HTGR can be successfully engineered and safely operated. Although insufficient information has been provided for the Committee to make a recommendation as to the adequacy of the specific design bases proposed, it believes that an HTGR plant along the general lines of the preliminary concept described in the referenced documents may constitute a system which can be so engineered and operated.

Sincerely yours,

/s/

Joseph M. Hendrie
Acting Chairman

References - Conceptual Design for Large HTGR

1) GAMD-9803 -- "Preliminary Information on the Design and Safety Characteristics of a Large HTGR with Conventional Containment" dated August 11, 1969

2) Letter from A. J. Goodjohn, GGA, to P. A. Morris, DRL, dated September 17, 1969