

ADVISORY COMMITTEE ON REACTOR S & EGARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20546

SEP 23 1970

Mr. W. L. Johnson

Director of Engineering
General Dynamics

GENERAL DYNAMICS CORPORATION, 1000 K STREET, N.W., WASHINGTON, D.C. 20004

RE: ADOPTION OF DESIGN

In its meeting, September 19-20, 1970, the Advisory Committee on Reactor Safety considered the revision of amendments to the application by General Dynamics Company to construct the Midland Nuclear Plant I. This project was the subject of a report to you dated June 12, 1970. The review was dependent on consideration of additional information and the issuance of a license by the Commission for the construction of the plant to be granted to the New Chemical Company. This was considered as a recommended meeting held in Washington, D.C. on September 14, 1970. It is noted that the licensee of Midland Nuclear Power and co-applicant of the General Dynamics Company, is also the New Chemical Company, Inc., a subsidiary of the New Chemical Company, Inc., New Jersey. The Commission also had the license of the plant issued.

Having reviewed documents the evidence of the new revised design which satisfies areas of the containing structure and has revised the peak accident pressure to 60 psig the calculated peak containment pressure to 60 psig in the unlikely event of a loss of coolant accident. The containment pressure has been raised to 60 psig to provide a suitable margin over peak accident pressure, and an adequate number of pressure relief vents will be provided in the containing structure to accommodate increased pressure. No changes in the structural design criteria are proposed. The Committee believes these changes are satisfactory.

In the earlier design the oxygen stream was taken from the secondary side of the main steam generators and might contain traces of radioactive gases from the primary system. The applicant now proposes to use this as a system of shield and failsafe filter to generate auxiliary steam supply to the New Chemical Company. Secondary steam condensate is also required to be returned to the auxiliary condenser but will take advantage of the auxiliary side of the auxiliary air supplied by compressor from the secondary steam which is supplemented as required by

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Honorable Glenn T. Seaborg

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Mr. Joseph Hendrie, Head Safety Director, Illinois Power, has submitted to the Nuclear Reactor Commission system for disposal to the NRC for review the proposed safety system of the nuclear plant to prevent or minimize damage to structures.

The proposed system will monitor and analyze radiation levels in the reactor core as described in the report. These include an early warning system for gamma radiation, which is set to alarm and automatically trip the reactor shutdown system if the gamma radiation level exceeds the specified limit. The system will also detect neutron radiation and the proposed detector will be set to alarm if the neutron radiation level exceeds the specified limit. Any early warning signal can cause an automatic shutdown of the reactor system but is not designed to affect the stability of the reactor system and therefore reduce radiotoxicity from radioactive materials in the system. If a shutdown occurs, the reactor will be taken off the plant or delivery of power will be discontinued.

The proposed system to detect early the radiotoxicity and prevent damage to the reactor system can be considered feasible during construction.

The Commission believes that the proposed system of reboilers will provide an additional margin of safety in the event of primary system failure. Since the proposed system can be maintained at an extremely low and constant level of risk, it is believed that such can be maintained consistently without significant difficulty. It is recommended that the proposed system be developed and evaluated by the Commission before it is proposed to the Nuclear Regulatory Board. The Commission will be kept informed.

The Commission believes that the above items can be resolved during construction and if due consideration is given to those items and to the items referred to in the letter dated 10, 1970 request, the nuclear units prepared for the Midland Plant can be constructed with reasonable assurance that they can be operated without undue risk to the health and safety of the public.

Yours truly,

Original Signed by
Joseph M. Hendrie
Joseph M. Hendrie
Chairman

CC: [unclear]

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