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

August 30, 1962

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

SUBJECT: REPORT ON MH-1A - FLOATING NUCLEAR POWER PLANT

Dear Dr. Seaborg:

During its forty-third meeting August 23-25, 1962, at Idaho Falls, Idaho, the Advisory Committee on Reactor Safeguards reviewed the proposal of the U.S. Army Corps of Engineers to construct a nuclear power reactor on a modified Z-EC2 Liberty ship. The Committee had the benefit of the references listed below and discussions with representatives of the Corps of Engineers, the Martin-Marietta Company, and the AEC staff.

The reactor will be of the pressurized water type, operating at a nominal full power output of 45 Mw(t), with a net power output of 10 Mw(e). The only site considered by the Committee for operation of this reactor is at Whitestone Point on the Potomac River, adjacent to the Fort Belvoir Military Reservation. The basis for selection of other sites will be one of the subjects of a future review. It should be understood that the conceptual design is not necessarily suitable for all the sites which may be proposed in the future.

While many of the details of the reactor design have not yet been firmed up and will require a later review, the general design would appear not to depart substantially from previous practice. The Committee notes that the proposed thermal performance is somewhat higher than that presently used in other reactors; but the Committee agrees with the Corps of Engineers that this matter can be discussed during a subsequent review and adjusted if need be without holding up the project.

Much of the novelty of the project lies in the mobility of the reactor platform and the uses proposed for the facility. The reactor will be fully contained and will also have an outer reactor compartment designed to reduce possible collision damage.

The Committee recommends that leak rate specifications on the containment be set at levels comparable with those on other similar facilities, i.e., at most, 0.1% per day of the total contained gas volume at the estimated maximum accident pressures achievable. In addition, the Committee recommends that during reactor operation the integrity of the containment not be violated while the primary reactor system is at pressures above atmospheric. It is understood that an air lock will be provided for access at these times. Halogen and particulate filters should be provided as an integral part of the primary containment and general ventilation systems and subject to routine performance tests. The recirculation rate and the time of initiating filter operations should be such that off-site doses will be held to acceptable levels in the event of an accident.

In event of an accident it is intended that the containment provide adequate protection to nearby personnel without movement of the facility. Normal movement of the facility will be provided by suitable towing since there are no other means of propulsion. It is understood that the reactor will be shut down and depressurized during any movement.

In view of past experience with this general type of reactor, the proposed containment, and considering the above comments, the ACRS believes that a facility of this general type can be constructed with reasonable assurance that it can be operated at the Whitestone Point site without undue hazard to the health and safety of the general public.

Sincerely yours,

/s/ F. A. Gifford

F. A. Gifford, Jr.
Chairman

References Attached.

References:

1. MH-1A Hazards Summary Report, Volume I - Illustrations, undated, received ACRS 5/31/62.
2. Initial Hazards Summary Report for the MH-1A Floating Nuclear Power Plant, Volume I, Engineering & Construction, dated May 1962.
3. Initial Hazards Summary Report for the MH-1A Floating Nuclear Power Plant, Volume III, Accident Evaluation, dated May 1962.
4. Initial Hazards Summary Report for the MH-1A Floating Nuclear Power Plant, Volume IV, Site Safety Analysis; Fort Belvoir, Virginia, dated May 1962.