

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

January 13, 1958

Honorable Lewis L. Strauss
Chairman, U. S. Atomic Energy Commission
Washington 25, D. C.

Subject: THE MIT REACTOR - DOCKET NO. 50-20

Dear Mr. Strauss:

The Massachusetts Institute of Technology has applied for license to operate its nuclear reactor located in Cambridge, Massachusetts, construction of which is now nearing completion. This letter is in reply to a request by the Atomic Energy Commission for the advice of the Advisory Committee on Reactor Safeguards with respect to the safety of the proposed operation of this reactor.

The Committee's advice is based upon information contained in the application and amendments thereto. The former Advisory Committee on Reactor Safeguards reviewed the proposed design of the reactor prior to the issuance of a construction permit and submitted a report, dated March 5, 1956, on this matter to the General Manager.

This is a research reactor designed for one megawatt (thermal) utilizing enriched alloy plate-type fuel elements and D₂O cooling and moderation. It incorporates many of the design principles of the CP-5 and MTR reactors. There are no novel features requiring demonstration and no important changes in design have been made since the review for a construction permit.

The reactor is located in a densely populated area close to public activities. Therefore, it is essential that effective administrative controls and effective operating and emergency procedures be established and maintained. The applicant has indicated provision for such controls and procedures, which appears to the Committee to be adequate.

While the Committee believes that any serious release of fission products is highly improbable, it is important that containment be maintained because of the location of the facility. The containment proposed is generally adequate. However, there is one point of weakness, namely, complete dependence on the reli-

January 13, 1958

ability of the automatic valve closure mechanism in the ventilation system. The Committee recommends that provision be made for some effective auxiliary means of closing the inlet and outlet lines of the ventilation system. Such a requirement could be met by provision for manual operation of the present valves in addition to the automatic operation already installed or by some other effective means. However, such a requirement is not considered necessary prior to the commencement of the research program.

In the opinion of this Committee, this reactor can be operated with an acceptable degree of risk to the health and safety of the public.

Sincerely yours,

/s/ C. Rogers McCullough

C. Rogers McCullough
Chairman
Advisory Committee on
Reactor Safeguards

CC: K. E. Fields, GM
H. L. Price, Div. L&R
ACRS Members - except
Dr. Benedict