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

February 17, 1967

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

Subject: REPORT ON THE NATIONAL BUREAU OF STANDARDS REACTOR

Dear Dr. Seaborg:

At its eighty-second meeting, February 8-11, 1967, the Advisory Committee on Reactor Safeguards reviewed the request for an operating license for the National Bureau of Standards Reactor (NBSR). This reactor, which is located at the National Bureau of Standards (NBS) facility near Gaithersburg, Maryland, is to be operated at a maximum power level of 10 MWt. The project was previously reviewed by the ACRS at the construction permit stage and discussed in Committee letters, dated September 11, 1961 and February 6, 1963. During the current review, a Subcommittee meeting was held in Washington, D. C. on February 2, 1967, and the Committee had the benefit of discussions with representatives of the National Bureau of Standards, the AEC Regulatory Staff, and of the documents listed below.

The Committee understands that NBS intends to make certain revisions in the reactor prior to start-up. These include the following:

(1) Installation of a safety valve to prevent possible overpressurization of the primary system;

(2) Removal of the helium bubbler backup shutdown system;

(3) Revisions in the protection instrumentation leading to greater redundancy;

(4) Revisions to permit use of radiation monitors in the ventilation ducts during confinement conditions.

The Committee understands that NBS will retain an operations consultant to direct the initial start-up and power operations.

In its construction permit letter of September 11, 1961, the Committee recommended tests to establish the integrity of the confinement building, the efficiency and adequacy of the exhaust and filter system, and the reliability of the dynamic protection system. NBS has conducted several tests covering these items. The Committee believes that these questions have been satisfactorily resolved.

The Committee has reviewed the monitoring facilities for radioactivity in the NBSR in both normal and confinement modes. It is satisfied that radioactivity releases can be monitored within the building and when exiting from the building stack.

NBS recognizes that the experiments performed in this reactor must be properly controlled. They have agreed to establish, in conjunction with the AEC Regulatory Staff, operating limitations on the possible energy releases associated with such experiments. The Committee recommends that any experiments involving the possibility of large chemical energy releases be referred to the AEC Regulatory Staff for review.

The NBS may install a cryogenic facility in this reactor in the future; the Committee has not reviewed NBSR with regard to the operation of this cryogenic facility. It suggests that the AEC Regulatory Staff review this facility at the appropriate time, and take necessary action.

It is the opinion of the ACRS that the reactor can be operated as proposed without undue risk to the health and safety of the public.

Mr. Harold Etherington did not participate in the ACRS review of the National Bureau of Standards Reactor.

Sincerely yours,

/s/

N. J. Palladino
Chairman

References:

1. Letter from National Bureau of Standards, dated April 6, 1966, with Final Safety Analysis Report on the National Bureau of Standards Reactor, NBSR 9.
2. Letter from National Bureau of Standards, dated October 4, 1966, with Supplement A of the Final Safety Analysis Report on the National Bureau of Standards Reactor, NBSR 9A, dated October 1, 1966.
3. Letter from National Bureau of Standards, dated December 21, 1966, with Supplement B of the Final Safety Analysis Report on the National Bureau of Standards Reactor, NBSR 9B, dated December 16, 1966.
4. Letter from National Bureau of Standards, dated January 23, 1967, with National Bureau of Standards Reactor Proposed Technical Specifications, NBSR-9C, dated January 19, 1967.