ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
UNITED STATES ATOMIC ENERGY COMMISSION
WASHINGTON 25, D. C.

April 8, 1961

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

Subject: REPORT ON DRESDEN NUCLEAR POWER STATION

Dear Dr. Seaborg:

At its thirty-third meeting, April 6-8, 1961, the Advisory Committee on Reactor Safeguards met with the AEC staff and the applicant to consider proposed new control rod blades for the Dresden reactor as well as certain other modifications in their present operating procedure. The Committee had the benefit of the documents referenced below and subcommittee discussion with the applicant at San Jose on March 14, 1961.

During the recent Dresden reactor shut down, it was discovered that the boron stainless steel control rods then in the reactor had developed structural cracks. Because of this problem, the applicant has proposed a new control rod design. This general type of rod has been used for shutdown purposes at the VBWR during 19 months of operation. The most extensive irradiation at high temperature of boron carbide filled tubes of the type used in the new Dresden rods has been in the OMRE control rods (since September of 1957).

The applicant has stated that he will conduct tests to determine that the new control rods have as much or more reactivity worth than the present rods. He indicated also that at least six rods selected at random will be removed during a planned shut down sometime in the period between 1500 and 3000 hours of operation at pressure. Each rod will be examined visually and checked for dimensional changes. This test will be repeated again sometime between 4500 and 9000 hours of additional operation. During these shut downs the control rod drive mechanisms will also be inspected. The Committee requests a report on the results of these inspections.

The applicant has also stated that there would be frequent checks of the operability of these rods and that he will shut down and investigate completely any rod failures if a separation of mechanism and rod is indicated or if there is a malfunction the cause of which cannot be ascertained. In addition, he will maintain a surveillance of reactivity changes and boron content in the water to obtain indications of any control rod tube failures. In view of the inspection and surveillance program proposed for these rods and the fact that some experience exists in the use of this type of rod, the Committee believes that the proposed blades may be utilized in the Dresden reactor. The reactor then may be operated at full licensed power without substantially altering the Committee's opinion that this reactor can be operated without undue hazard to the health and safety of the general public. However, the Committee is not yet convinced that this rod design will be suitable for the planned life of the reactor.

The Committee recognizes that certain acceptance tests of these rods are not yet complete but believes that the results of these tests will not affect its opinion. The AEC staff has stated that it will follow these tests and the restart critical tests and keep the Committee informed of the results.

In an amendment dated January 4, 1961, the Commonwealth Edison Company requested consideration of nine changes in Appendix A of license DPR-2. On March 31, the Company requested that Item #9 of the January 4 amendment be withdrawn and Item #7 modified. The Committee believes that the changes requested will not substantially affect the general safety of this installation. However, the Committee recommends that the integral leakage test proposed as Item #7 in the March 31 amendment include a provision to measure the integral leak rate of the containment as accurately as possible and that provision be made to check the leak rate through the main steam line shutoff valves which constitute a part of the containment, preferably at the same time, but otherwise as close as possible to the same time. We would suggest that this test or any other test which demonstrates the integral leak tightness of the containment be repeated at suitable intervals to be proposed by the applicant and agreeable to the AEC staff.

It is the Committee's understanding that the applicant does not intend to make any change from the original license in his burnout factor or burnout criteria. The comments and reservations contained in the Committee letter of March 4 on this subject are then no longer required.

Sincerely yours,

/s/ T. J. Thompson

T. J. Thompson
Chairman

References:

1. Proposed amendment to License DPR-2 as Amended, Changes to Appendix A, dated January 4, 1961.

2. Letter, I. L. Wade to R. Lowenstein, dated March 31, 1961 regarding Revision of Changes to Appendix A.

3. Control Blade Revisions, Addendum I, dated March 8, 1961.

4. Examination of VBWR control Rods, dated May 15, 1958.

5. Fabrication of B_4C Powder Control Rods for Alternate Dresden Design, dated August 6, 1958.

cc: H. L. Price, Acting Dir., Regulation
R. Lowenstein, Acting Dir., DL&R