ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

December 10, 1975

Honorable William A. Anders
Chairman
U. S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: REPORT ON C. F. BRAUN STANDARD TURBINE ISLAND DESIGN (BRAUN SAR)

Dear Mr. Anders:

At its 188th meeting on December 4-6, 1975, the Advisory Committee on Reactor Safeguards reviewed the application of C. F. Braun and Company for a Preliminary Design Approval (PDA) of its Standard Turbine Island Design, Braun SAR, which has been developed as a complementary element of the General Electric Company's BWR-6/Mark III Standard Nuclear Island design, GESSAR-238. The Braun SAR was previously reviewed at a Subcommittee meeting in Washington, DC on December 3, 1975. During its review, the Committee had the benefit of discussions with representatives of C. F. Braun and Company and the Nuclear Regulatory Commission (NRC) Staff. The Committee also had the benefit of the documents listed. The Braun SAR together with the General Electric Company's GESSAR-238, which was reviewed by the ACRS in its report dated March 14, 1975, is nearly equivalent to standard PWR Nuclear Steam Supply System designs such as RESAR-41 and CESSAR-80 combined with standard Balance of Plant designs such as SWESSAR.

The Braun SAR describes the analysis and design of the structures, systems, and components within the physical boundaries of the turbine island portion of the plant. Since most of what is included is conventional steam-electric power conversion equipment and space for the radioactive off-gas systems, the major safety matters of interest are those concerning the interfaces with safety-related features identified in GESSAR-238 and those to be proposed by the nuclear power plant license applicant in the Balance of Plant design. The interface responsibilities related to GESSAR, Braun SAR, the Balance of Plant design, and the nuclear power plant license applicant are still being worked out by the NRC Staff. The Committee wishes to be kept informed of the resolution of these matters.

The proposed turbine island design will permit the use of turbine-generators from any of three U.S. suppliers. This approach appears to be acceptable but will require further examination when a complete unit, including a specific turbine-generator, is proposed for licensing by a utility applicant.

The integration of fire protection for the plant and the coordination of instrumentation sensors in the turbine island with interdependent controls in the nuclear island and in the Balance of Plant, will require attention at the time when Braun SAR is used as a portion of a nuclear power plant license application. Plans for dealing with these matters should be included in the NRC Staff's standard review plans.

The proposed orientation of the turbine-generator with respect to the nuclear island is suitable for a single unit installation. For multiple unit power plants, the location and orientation of the units should be such as to yield acceptably low probabilities of damage by low-trajectory turbine-generator missiles unless suitable missile-shielding is provided.

Generic problems related to large water reactors are discussed in the Committee's report dated March 12, 1975. Those problems relevant to Braun SAR should be dealt with appropriately by the NRC Staff and the Applicant.

The Advisory Committee on Reactor Safeguards believes that the items mentioned above can be resolved during the standardized plant licensing process and that if due consideration is given to the foregoing, Preliminary Design Approval for Braun SAR can be granted in accord with the spirit and purposes set forth in the Commission's policy statement on standardization of nuclear power plants as described in WASH-1341, "Programmatic Information for the Licensing of Standardized Nuclear Power Plants" and in conformance with the Regulations of Appendix 0 to Part 50 and Section 2.110 of Part 2 of Title 10 of the Code of Federal Regulations.

Sincerely yours,

W Kerr

W. Kerr
Chairman

References

1. Braun Safety Analysis Report (Braun SAR)

2. Amendments Nos. 1 through 7 to Braun SAR

3. Report to the Advisory Committee on Reactor Safeguards by the Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission in the Matter of C. F. Braun and Company, Braun SAR Standard Turbine Island Design Docket No. STN 50-532, dated November 1975