



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

July 20, 1977

United States Nuclear
Regulatory Commission
Washington, DC 20555

SUBJECT: REPORT ON THE FLUOR PIONEER, INC. BALANCE OF PLANT STANDARD
SAFETY ANALYSIS REPORT (BOPSSAR) AS APPLIED TO THE WESTING-
HOUSE ELECTRIC CORPORATION RESAR-41 NSSS DESIGN

Dear Commissioners:

During its 207th meeting, July 14-15, 1977, the Advisory Committee on Reactor Safeguards completed its review of the application of Fluor Pioneer, Inc. for Preliminary Design Approval of its BOPSSAR, a standardized nuclear balance of plant (BOP) design that would interface with a single unit Westinghouse Electric Corporation, RESAR-41 pressurized-water reactor nuclear steam supply system (NSSS). A review of the RESAR-41 design was completed at the 185th meeting of the Committee and was discussed in its report of September 18, 1975. A Subcommittee meeting was held with representatives of Fluor Pioneer, Inc. and the Nuclear Regulatory Commission (NRC) Staff in Washington, DC on June 28, 1977. During its review the Committee had the benefit of discussions with the Applicant and the NRC Staff and of the documents listed.

The arrangement of BOPSSAR provides extensive physical separation of critical safety-related equipment to protect against common mode failures associated with fires or other operational contingencies. However, complete design details for BOPSSAR have not been developed and the concept has not yet been applied to a complete nuclear power plant design. Consequently, further review of the physical separation arrangement should be made prior to the Final Design Approval or when BOPSSAR is proposed for a nuclear power plant for which a construction permit is being sought.

The Committee believes that the safety-related interface requirements between BOPSSAR and RESAR-41 NSSS designs, and between BOPSSAR and the custom-designed site-related structures and components, are satisfactory for a Preliminary Design Approval, but expects the NRC Staff and the Applicant to examine them in greater depth when a construction permit application is received.

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The coordination of interdependent instrumentation and controls of the NSSS and BOP will require attention at the time when BOPSSAR is used as a portion of a nuclear power plant license application. The Committee recommends that these matters be included in the NRC Staff's Standard Review Plan.

Although BOPSSAR and RESAR-41 include provisions for protection against industrial sabotage, the Committee believes that further steps can be taken beyond those provided. Before a construction permit referencing BOPSSAR and RESAR-41 is issued for a nuclear power plant, the Utility-Applicant should be required to demonstrate that acceptable provisions to preclude or to mitigate the consequences of industrial sabotage will be incorporated into the plant design.

The BOPSSAR design includes some provisions which anticipate the maintenance, inspection, and operational needs of the plant throughout its service life, including cleaning and decontamination of the primary coolant system, and eventual decommissioning. However, when BOPSSAR is used as a portion of a nuclear power plant license application the Committee believes that the NRC Staff and the Applicant should further review methods and procedures for removing accumulated contamination whereby maintenance and inspection programs and ultimate decommissioning can be more effectively and safely carried out.

Generic problems related to large water reactors are discussed in the Committee's report dated February 24, 1977. Those problems relevant to BOPSSAR and RESAR-41 should be dealt with appropriately by the NRC Staff and the Utility-Applicant as solutions are found.

The Advisory Committee on Reactor Safeguards believes that the items mentioned above should be given further consideration during the plant licensing process and that, if due consideration is given to the foregoing, Preliminary Design Approval of BOPSSAR for use in conjunction with RESAR-41 can be granted in accord with the spirit and purposes set forth in the Commission's policy statement on standardization of nuclear power plants.

Sincerely yours,



M. Bender
Chairman

References

1. Fluor Pioneer, Inc. Balance of Plant Standard Safety Analysis Report, BOPSSAR, Volumes 1 through 8 and Amendments 1 through 10
2. Report to the Advisory Committee on Reactor Safeguards in the Matter of Fluor Pioneer, Inc. Balance of Plant Standard Safety Analysis Report June 3, 1977 by the U.S. Nuclear Regulatory Commission, Office of Nuclear Reactor Regulation