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DCP/NRC1260
NSD-NRC-98-5576
Docket No.: 52-003

February 18, 1998

Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: T. R. QUAY

SUBJECT: REQUEST FOR EXEMPTION

Dear Mr. Quay:

Attached is an updated list of requests for exemption for the AP600. In letter DCP/NRC0741, dated February 21, 1997, letter DCP/NRC1029, dated September 12, 1997, and letter DCP/NRC1238, dated January 30, 1998, Westinghouse provided a summary of AP600 design and operational features that require exemptions from regulations. The summary of requests for exemptions from regulations has been revised as a result of comments and requests in a letter from the NRC dated January 30, 1998. This revised summary is enclosed.

This update deletes the requests for an exemption from use of ASME Code, Section III for Class C gas storage vessels, the exemption from operating-basis earthquake design requirement in 10 CFR Part 100, the exemption from use of ASME OM Code 1987 Edition, and the exemption from 10 CFR 70.24 requirement for criticality monitoring of new fuel in storage. The request for exemption from 10CFR 50.62 was revised for clarity.

Please contact Donald A. Lindgren at (412) 374-4856 if you have any questions.

Brian A. McIntyre, Manager
Advanced Plant Safety and Licensing

jml

Attachment

cc: J. N. Wilson, NRC/NRR/DRPM (w/Attachment)
J. E. Moore, NRC-Office of General Council (w/Attachment)
N. J. Liparulo, Westinghouse (w/o Attachment)

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EXEMPTIONS TO NRC REGULATIONS

In some cases the regulations in 10 CFR Part 50 are not appropriate for the design certification of the AP600. These rules are not appropriate because of the incorporation of passive safety systems into the AP600 and other changes in technology.

1. Deletion of [redacted]
2. **Exemption from General Design Criteria 17 requirement for physically independent circuit (second off-site electrical power source) SSAR Section 3.1**

This requirement is found in 10 CFR 50 Appendix A, General Design Criterion 17 - Electrical Power Systems

An onsite electric power system and an offsite electric power system shall be provided to permit functioning of structures, systems, and components important to safety. The safety function for each system (assuming that the other system is not functioning) shall be to provide sufficient capacity and capability to assure that (1) specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded as a result of anticipated operational occurrences and (2) the core is cooled and containment integrity and other vital functions are maintained in the event of postulated accidents.

The onsite electric power supplies, including the batteries, and the onsite electric distribution system shall have sufficient independence, redundancy, and testability to perform their safety functions, assuming a single failure.

Electric power from the transmission network to the onsite electric distribution system shall be supplied by two physically independent circuits (not necessarily on separate rights-of-way) designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure under operating and postulated accident and environmental conditions. A switchyard common to both circuits is acceptable. Each of these circuits shall be designed to be available in sufficient time, following a loss of all onsite alternating current power supplies and other offsite electric power circuit, to assure that specified acceptable fuel design limits and design conditions of the reactor coolant pressure boundary are not exceeded. One of these circuits shall be designed to be available within a few seconds following a loss of coolant accident to assure that core cooling, containment integrity, and other vital safety functions are maintained.

Provisions shall be included to minimize the probability of losing electric power from any of the remaining supplies as a result of, or coincident with, the loss of power generated by the nuclear power unit, the loss of power from the transmission network, or the loss of power from the onsite electric power supplies.

The AP600 plant design supports an exemption to the requirement of GDC 17 for two physically independent offsite circuits by providing safety-related passive systems for core cooling and containment integrity, and multiple nonsafety-related onsite and offsite electric power sources for other functions. See SSAR Section 6.3 for additional information on the systems for core cooling.

A reliable dc power source supplied by batteries provides power for the safety-related valves and instrumentation during transient and accident conditions.

The Class 1E dc and UPS system is the only safety-related power source required to monitor and actuate the safety-related passive systems. Otherwise, the plant is designed to maintain core cooling and containment integrity, independent of nonsafety-related ac power sources indefinitely. The only electric power source necessary to accomplish these safety-related functions is the Class 1E dc and UPS power system which includes the associated safety-related 120V ac distribution switchgear.

Although the AP600 is designed with reliable nonsafety-related offsite and onsite ac power that are normally expected to be available for important plant functions, nonsafety-related ac power is not relied upon to maintain the core cooling or containment integrity.

The nonsafety-related ac power system is designed such that plant auxiliaries can be powered from the grid under all modes of operation. During loss of offsite power, the ac power is supplied by the onsite standby diesel-generators. Preassigned loads and equipment are automatically loaded on the diesel-generators in a predetermined sequence. Additional loads can be manually added as required. The onsite standby power system is not required for safe shutdown of the plant.

This evaluation of power sources required for AP600 meets the exemption criteria of 10 CFR 50.12 (a)(1) and (a)(2)(ii).

3. Deleted

4. Deleted

5. Deleted

6. Deleted

7. Deleted

8. Deleted

9. Exemption from 10 CFR 50.62 requirement for automatic start up of auxiliary Feedwater system

10 CFR 50.62 requires the automatic initiation of the auxiliary feedwater system under conditions indicative of an ATWS. The AP600 does not include a safety-related auxiliary feedwater system, but instead automatically initiates the passive residual heat removal system.

The criteria for exemptions in 10CFR50.12 have been reviewed for applicability to automatic initiation of the auxiliary feedwater system. This exemption request satisfies criterion (a)(2)(ii). The applicable criterion is addressed below.

(a) (2) (ii) Application of the regulation in the particular circumstances would not serve the underlying purpose of the rule or is not necessary to achieve the underlying purpose of the rule;

The AP600 is designed to provide safety-related emergency core cooling without the use of active safety-related systems. The passive residual heat removal system transfers heat from the reactor coolant by natural convection using the passive residual heat removal system heat exchanger in the in-containment refueling water storage tank (IRWS) and the containment shell. The core in the AP600 can be cooled using safety-related systems and components without initiation of the nonsafety-related auxiliary feedwater system.