

APPLICATION FOR AMENDMENT
TO
FACILITY OPERATING LICENSE NO. NPF-3
FOR
DAVIS-BESSE NUCLEAR POWER STATION
UNIT NO. 1

Enclosed are forty-three (43) copies of the requested changes to the Davis-Besse Nuclear Power Station Unit No. 1 Facility Operating License No. NPF-3, together with the Safety Evaluation for the requested change.

The proposed changes include Cycle 4 Reload Report (BAW-1783 May 1983).

By /s/ T. D. Murray
Station Superintendent

For R. P. Crouse
Vice President, Nuclear

Sworn and subscribed before me this 5th day of July, 1983.

Nora Lynn Flood
Notary Public, State of Ohio
My Commission expires Sept. 1, 1987

S E A L

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Docket No. 50-346
License No. NPF-3
Serial No. 965
July 5, 1983

Attachment

- I. Changes to Davis-Besse Nuclear Power Station Unit 1, Appendix A
Technical Specifications
 - A. Time required to Implement. This change is to be effective
upon NRC approval.
 - B. Reason for Change (Facility Change Request 82-106 Supplement 1).
To reflect changes in Cycle 4 core.
 - C. Safety Evaluation
See Attached
 - D. Significant Hazards Considerations
See Attached

SAFETY EVALUATION

This amendment request proposes reloading of new fuel and the shuffling of fuel and control rod assemblies to facilitate nuclear power generation for Cycle 4 in accordance with the limits and analysis presented in the attached Reload Report BAW-1783. The safety function of the Reload Report and the affected Technical Specifications is to ensure operation of the core within safety limits.

The reference cycle for the nuclear and thermal-hydraulic design of Cycle 4 is the projected Cycle 3 End of Cycle (EOC) conditions. The Cycle 4 physics parameters are based on a 268 effective full power day (EFPD) Cycle 3 length including APSR withdrawal and coastdown. There were no anomalies during Cycle 3 which would adversely affect fuel performance during Cycle 4, as designed. The loading includes 48 new fuel assemblies and the reinsertion of 37 previously discharged fuel assemblies with no mechanical design changes for the reload. The Cycle 4 design is characterized by only eight fuel assemblies being cross core shuffled so as to minimize any carryover effects from tilts encountered in previous cycles.

The Cycle 4 thermal analyses represents a change in the analytical method. The analyses for the incoming batch 6 fuel have been performed using the TACO2 computer code. This contains the NRC imposed densifications model and results in a 0.5 kw/ft reduction from the 16.5 kw/ft LOCA limit at the 2 ft. elevation reported in BAW-10105 due to the change in heat transfer thru the altered gap size. It is projected that there are no changes to the kw/ft limit at other elevations due to TACO2. The impact of NUREG-0630 has been incorporated into the ECCS model for Cycle 4. It contains revised models for cladding rupture, strain and blockage during and following a LOCA and results in an additional 0.5 kw/ft reduction. The overall effect, then is a new LOCA limit of 15.5 kw/ft. The 15.5 kw/ft analysis was only performed for the 2 ft. elevation. This restriction applies only to the first 24 EFPD, at which time the temperature is sufficiently reduced to allow the limits reported in BAW-10105. The new limits translate to more stringent control rod insertion and imbalance limits for the first 24 effective full power days (EFPD) of operation.

The thermal-hydraulic design results in Cycle 4 do not differ significantly from that in Cycle 3. The moderator and Doppler coefficients remain negative for Cycle 4. The moderator coefficient is less negative than the FSAR value so that the FSAR value is bounding for main steam line break or any overcooling transients. The maximum dropped rod worth is less than the FSAR value which compensates for the slightly more negative Doppler coefficient at BOC4. The ejected rod worth is also smaller than the FSAR value. The boron reactivity worth is also bounded by the FSAR value for the moderator dilution accident. The FSAR accidents have been examined by B&W with respect to the Cycle 4 parameters to ensure that the thermal performance during the hypothetical transients has not been degraded.

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SAFETY EVALUATION (CON'T)

The pertinent Technical Specifications in the Reload Report have been revised for Cycle 4 operation to account for changes in power peaking and control rod worths. The planned start-up physics test program is the same as that performed for Cycle 3 and is sufficient to demonstrate that the core will perform within the assumption of the safety analysis. The core power distribution tests will be used as a check on the power distribution in the core to identify any abnormalities and to maintain the quadrant power tilt within the Technical Specifications limits.

Therefore, it is concluded that the changes proposed in the Cycle 4 Reload Report do not involve an unreviewed safety question.

SIGNIFICANT HAZARD CONSIDERATION

The proposed license amendment request, Cycle 4 Reload Report, for the Davis-Besse Nuclear Power Station Unit No. 1 does not contain a significant hazard. The Reload Report is similar to previously submitted reload reports in design and limits considerations. The previous reports have been evaluated and did not invoke a significant increase in the probability or consequences of an accident previously evaluated. Therefore, this request meets 10 CFR 50.92 (c)(1).

The analysis of Cycle 4 Reload Report did not identify any new or different kind of accident from any previously evaluated by the NRC. The accident and consequences are bounded by previously evaluated design and submitted Reload Report. Therefore, this amendment request does not create the possibility of a new or different accident from any accident previously evaluated and meets 10 CFR 50.92 (c)(2).

The evaluations of the reload report that all margins of safety are bounded by previous evaluations and analysis. Any change to setpoint or margins are small and within licensed design limits for Davis-Besse. Therefore, we meet Section 50.92 (c)(3).

In accordance with the issued rule, the Commission notes examples of Amendments that are considered not likely to involve Significant Hazard Considerations which includes changes resulting from Reload Reports. There are no new fuel assemblies significantly different from previously accepted by the NRC. There are no significant changes made to the acceptance criteria and analytical methods used to demonstrate conformance with Technical Specifications. The rules and regulations have not been significantly changed and the NRC has previously found such methods acceptable.

Therefore, based on the attached safety evaluation and the above, the requested amendment does not contain a Significant Hazard.

BAW-1783

May 1983

DAVIS-BESSE NUCLEAR POWER STATION
UNIT 1, CYCLE 4 - RELOAD REPORT