

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 Sections 4.1.2.1, 4.1.2.2, 3.1.2.8 and 3.1.2.9.

By *M. Chou*
Vice President, Nuclear

Sworn and subscribed before me this 11th day of October, 1983.

Nora Lynn Flood
Notary Public
NORA LYNN FLOOD
Notary Public, State of Ohio
My Commission Expires Sept. 1, 1987

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Docket No. 50-346
License No. NPF-3
Serial No. 994
October 11, 1983

Attachment

I. Changes to Davis-Besse Nuclear Power Station Unit 1, Appendix A, Technical Specifications Sections 4.1.2.1, 4.1.2.2., 3.1.2.8 and 3.1.2.9.

A. Time required to Implement. This change is to be effective upon NRC approval.

B. Reason for Change (Facility Change Request 82-111 Rev. C)

The surveillance requirement for boration system requires the heat traced portion of the flow path to be verified greater than 105°F. If the system is transferring or just after transfer of demineralized water and low boron concentration of liquids less than 5000 ppm the piping may be less than 105°F. The change would extend the time for verification up to 8 hours. This verification of temperature also verifies the operability of the associated heat tracing.

C. Safety Evaluation
(See Attached)

D. Significant Hazard Consideration
(See Attached)

dh d/6-3

SAFETY EVALUATION

The purpose of the affected amendment request is to provide assurance against boron crystallization in the concentrated boric acid addition system and the boron injection flow path from this system. The safety function of the boric acid addition system is to provide a boration capability sufficient to ensure adequate shutdown margin from all operating conditions to 1.0% $\Delta K/K$ after Xenon decay and cooldown to 200°F.

Technical Specifications Sections 4.1.2.1, 4.1.2.2, 3.1.2.8 and 3.1.2.9 require that two flow paths be operable by verifying that the pipe temperature of the heat traced portion of the flow path from the concentrated boric acid storage system is greater than 105°F and the boric acid addition system and associated heat tracing has between 7,875 and 13,125 ppm of boron with a solution temperature greater than 105°F. The 105°F minimum boric acid solution temperature for the boric acid flow path is intended to avoid crystallization of the boric acid solution by maintaining the heat traced portion of the flow path from the concentrated boric acid solution temperature above 105°F. However, Technical Specifications 4.1.2.1a and 4.1.2.2a should be revised because a section of the heat traced piping from the Boric Acid Addition Tank (BAAT) to the "T" connection to the letdown return line is used not only for boric acid addition from BAAT but also for the transport of demineralized water and other low boron concentration (<5000 ppm) liquid e.g. the clean radwaste receiver tank. Because of the relatively low temperature (60-80°F) of this low boron concentration liquid, the requirements of Specifications 4.1.2.1a and 4.1.2.2a cannot be satisfied if the flow path is being used for transport of such liquids. Therefore, this surveillance requirement needs to be modified per the attached.

The only time the need for temperature verification exists is during and after the flow path has been used for transporting boric acid with a source concentration of >5000 ppmB. If at any time the line is used for transporting the boric acid of source concentration <5000 ppmB, the temperature need not be maintained above 105°F, since per the attached Figure 2 the crystallization will occur only below the freezing point of approximately 32°F. Thus, there is no safety concern for boric acid crystallization under those circumstances. Liquid samples are taken from the source for verification of boron concentration (not from the flow path) and this is so reflected in the revised Technical Specifications.

The proposed modification to the Technical Specifications allows for conditions when the verification of surveillance requirements is to be completed close to a time when the flow path has been or is being used to transport low boron concentration solutions. Thus, if the seven day verification of temperature falls during transfers of low boron concentration solutions, the verification period may be extended up to 8 hours after the addition of dilute boron solution has been stopped for at least 8 additional hours. This implies that the seven day temperature verification is not required if the line is being used for transport of low boron concentration water either continuously, or, intermittently as long as the time period between two successive (low boron concentration) water transports is less than 8 hours. This period is considered adequate and

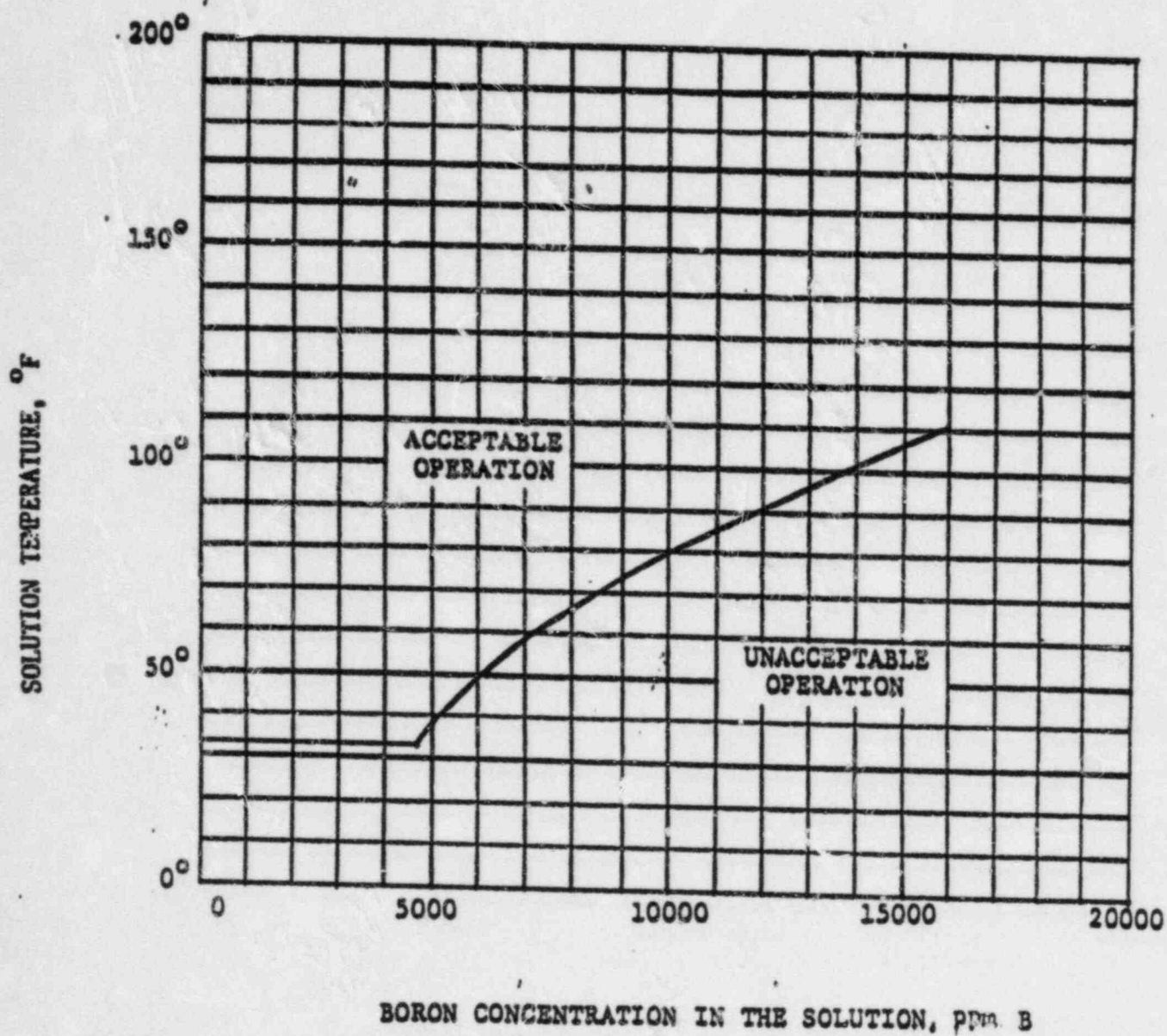
included in the Technical Specifications to allow for the conduct of successive routine deborations during normal plant operation and core life. If the seven day verification falls during such transfers and the transfer is stopped for more than 8 hours, the surveillance verification has to be performed within the next 8 hours. This allows adequate time for the heat tracing to elevate and maintain the boric acid flow path temperature after the passage of cold liquids through the flow path has been stopped. Such verification will also ensure the operability of the heat tracing and further, will prevent boron crystallization should the flow path be used next for transfers of high boron concentration solutions. If the seven day verification falls during high boron concentration (>5000 ppmB) transfers, the verification requirement will be the same as in the existing Technical Specifications.

Technical Specifications 3.1.2.8a.3 and 3.1.2.9a.3 require that the boric acid addition system and associated heat tracing have a minimum solution temperature of 105°F. However, as stated above, the revised Technical Specifications 4.1.2.1a and 4.1.2.2a will ensure the operability of heat tracing and verification thereof on a periodic basis. Therefore, Technical Specifications 3.1.2.8a.3 and 3.1.2.9a.3 should not include the associated heat traced portion since the Surveillance Requirements for its operability are already included in revised Technical Specifications 4.1.2.1a and 4.1.2.2a.

The proposed changes to the Technical Specifications will ensure that adequate protection is available when required. At the same time it will eliminate an undue restriction on temperature during the times when this restriction does not serve any safety function. The proposed changes adequately provide the assurance that the intent of the Technical Specifications is being met. Therefore, making these changes in the Technical Specifications will preserve the safety function of the boron injection system.

Pursuant to the above, this is not an unreviewed safety question.

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Minimum Solution Temperature in the Boric Acid Addition System

FIGURE-2

SIGNIFICANT HAZARD CONSIDERATION

The attached amendment request for a change to the "Limiting Condition for Operation" (LCO) and Surveillance Requirements does not contain a Significant Hazard. The proposed request allows an extension up to 8 hours to verify the pipe temperature of the heat traced portion if makeup water or dilute boron solution is being transferred and delete the operability of the associated heat tracing of the boric acid addition system.

Technical Specifications Sections 4.1.2.1 and 4.1.2.2 require flow path shall be demonstrated operable by verifying that the pipe temperature of the heat traced portion of the flow path is $\geq 105^{\circ}\text{F}$ from the concentrated boric acid storage system. The heat traced piping from the Boric Acid Addition Tank (BAAT) to the "T" connection to the letdown return line is used not only for boric acid addition from BAAT but also for the transport of demineralized water and other low boron concentration (< 5000 ppm) liquid e.g. the clean radwaste receiver tank. Because of the relatively low temperature ($60-80^{\circ}\text{F}$) of this low boron concentration liquid, the requirements of Specifications 4.1.2.1a and 4.1.2.2a cannot be satisfied if the flow path is being used for transport of such liquids.

The only time the need for temperature verification exists is during and after the flow path has been used for transporting boric acid with a source concentration of > 5000 ppmB. If at any time the line is used for transporting the boric acid of source concentration < 5000 ppmB, the temperature need not be maintained above 105°F , since the crystallization will occur only below the freezing point of approximately 32°F . Thus, there is no safety concern for boric acid crystallization under those circumstances.

The proposed modification to the Technical Specifications allows for conditions when the verification of surveillance requirements is to be completed close to a time when the flow path has been or is being used to transport low boron concentration solutions. Thus, if the seven day verification of temperature falls during transfers of low boron concentration solutions, the verification period may be extended up to 8 hours after the addition of dilute boron solution has been stopped for at least 8 additional hours. This period is considered adequate and included in the Technical Specifications to allow for the conduct of successive routine deborations during normal plant operation.

The verification will also ensure the operability of the heat tracing and further, will prevent boron crystallization should the flow path be used next for transfers of high boron concentration solutions. If the seven day verification falls during high boron concentration (> 5000 ppmB) transfers, the verification requirement will be the same as in the existing Technical Specifications.

Technical Specifications 3.1.2.8a.3 and 3.1.2.9a.3 require that the boric acid addition system and associated heat tracing have a minimum solution temperature of 105°F . However, as stated above, the revised Technical Specifications 4.1.2.1a and 4.1.2.2a will ensure the operability of heat tracing and verification thereof on a period basis. Therefore, Technical

Specification 3.1.2.8a.3 and 3.1.2.9a.3 should not include the associated heat traced portion since the Surveillance Requirements for its operability are already included in revised Technical Specifications 4.1.2.1a and 4.1.2.2a.

The granting of the request would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated 10 CFR 50.92 (c)(1).

This revision would allow an extension to verify the temperature of the heat traced portion of the boric acid system which also verifies the operability of the heat tracing. There is no significant increase in the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident previously evaluated 10 CFR 50.92 (c)(2).

All accidents are still bounded by previous evaluations and no new accidents are involved.

3. Involve a significant reduction in a margin of safety 10 CFR 50.92 (c)(3).

The margins of safety assumed in the accident analysis are unaffected by the request.

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

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