APPLICATION FOR AMENDMENT

TO

FACILITY OPERATING LICENSE NO. NPF-3

FOR

DAVIS-BESSE NUCLEAR POWER STATION

UNIT NO. 1

Attached is the requested change to the Davis-Besse Nuclear Power Station, Unit No. 1 Facility Operating License No. NPF-3. Also included are the Safety Evaluation and Significant Hazards Consideration.

The proposed changes (submitted under cover letter Serial No. 1461) concern:

Section 3/4.3.2, Safety System Instrumentation, Steam and Feedwater Rupture Control System Instrumentation, Table 3.3-11, Steam and Feedwater Rupture Control System Instrumentation, Table Notation "*".

By _____
D. C. Shelton, Vice President, Nuclear

Sworn to and subscribed before me this 29th day of February, 1988.

Patricia L. Fessler
Notary Public, State of Ohio

My commission expires 5/18/91

The following information is provided to support issuance of the requested change (Attachment 3) to the Davis-Besse Nuclear Power Station, Unit No. 1 Operating License No. NPF-3, Appendix A, Technical Specifications, Section 3.3.2.2, Table 3.3-11.

A. Time required to implement: This change is to be implemented within 30 days after NRC issuance of the License Amendment and prior to the beginning of Cycle 6, which is presently scheduled for September, 1988.

B. Reason for change (Facility Change Request No. 87-0116A): This change will minimize the possibility of an inadvertent MS low pressure trip occurring during plant cooldown and heatup by modifying the low pressure block permit setpoint from 650 psig to 700 psig and increasing the steam pressure where the block permit is automatically removed to 750 psig.

C. Safety Evaluation: See attached Safety Evaluation (Attachment No. 1).

D. Significant Hazards Consideration: See attached Significant Hazards Consideration (Attachment No. 2).

SAFETY EVALUATION

Description

The purpose of this Safety Evaluation is to review the proposed change to the Davis-Besse Nuclear Power Station Unit No. 1 Technical Specifications (TS) to ensure that the change does not constitute an unreviewed safety question. The proposed TS change is to increase the Steam and Feedwater Rupture Control System (SFRCS) Main Steam (MS) low pressure block permit setpoint specified in TS Table 3.3-11 from 650 psig to 700 psig and to increase the steam pressure when the block permit is automatically removed from 650 psig to 750 psig. This change will increase the pressure margin between the SFRCS block permit and the SFRCS MS low pressure trip setpoints; thereby, minimizing the possibility of an inadvertent MS low pressure trip from occurring during plant cooldown operations.

Systems and Components Affected

Steam and Feedwater Rupture Control System (SFRCS)

Documents Affected

Davis-Besse Nuclear Power Station, Unit No. 1, Operating License, Appendix A, Technical Specifications

Davis-Besse Nuclear Power Station, Unit No. 1, Updated Safety Analysis Report, July 1987

Safety Functions Affected

The SFRCS is an automatic system designed to detect and mitigate the effects of major upsets in the MS and Main Feedwater (MFW) systems, including MS and MFW line ruptures, loss of MFW events, Steam Generator (SG) overfeed, and a loss of Reactor Coolant System (RCS) forced circulation cooling. The SFRCS detects these events through sensing and logic channels and mitigates their consequences by automatically positioning valves in the MS, MFW, and Auxiliary Feedwater (AFW) systems with appropriate actuation signals dependent upon the initiating event.

The SFRCS consists of four identical sensing and logic channels housed in two electrically separate cabinets. Each cabinet consists of two redundant sensing and logic channels. Logic Channels 1 and 3 are located in Cabinet 1 and form Actuation Channel 1 (predominantly SG 1). Logic Channels 2 and 4 are located in Cabinet 2 and form Actuation Channel 2 (predominantly SG 2).

The sensing channels consist of the instrumentation used to monitor the various parameters which provide inputs to the logic channels. These inputs include:

- SG high and low water level
- MS low pressure
- SG to MFW differential pressure
- RCP high and low motor current

The only SFRCS sensing instrumentation relevant to this proposed change is the MS low pressure signal.

A MS low pressure trip of an Actuation Channel of SFRCS during plant operation would be indicative of a main steam line break (MSLB). The MS low pressure trip instrumentation includes pressure switches for all four SFRCS logic channels on each MS header. A trip of single pressure switches in both Logic Channels 1 and 3 on a MS header would cause a trip of SFRCS Actuation Channel 1; whereas, a trip of single pressure switches in both Logic Channels 2 and 4 on a MS header would cause a trip of SFRCS Actuation Channel 2. An SFRCS Actuation Channel trip would cause the complete isolation of the SG connected to the MS header experiencing the trip signal, the re-alignment of the affected SG's AFW pump to the opposite SG, and the initiation of AFW to the unaffected SG. It would also isolate the main steam line isolation valve and selected main feedwater valves on the unaffected SG.

The SFRCS also includes a manual low pressure block permissive feature that allows the operator to block the SFRCS MS low pressure trip signal during plant cooldown. This manual operator action is intended to prevent inadvertent actuation and unnecessary challenges to SFRCS and associated systems during plant cooldown. Each MS header contains four pressure switches for the block permissive signal. Two of these pressure switches are associated with a single SFRCS Logic Channel; and the remaining two pressure switches on that MS header are associated with the complimentary logic channel in that Actuation Channel. This results in the four pressure switches for the block permit on the MS header for SG 1 being used to block Actuation Channel 1 and the four pressure switches on the MS header for SG 2 being used to block Actuation Channel 2. Once a block permit for a channel is received, manual action is required to actually block that channel from tripping. As required to comply with IEEE Standard 279-1971 for a protection system and to satisfy the Technical Specification requirements, during plant heatup the SFRCS low pressure block signal is automatically removed. This action ensures that the safety function of the SFRCS MS low pressure trip signal is activated automatically during heat-up operations and remains activated when the plant is critical in either Modes 1 or 2.

Effects on Safety

DBNPS Technical Specifications, Limiting Condition for Operation 3.3.2.2 requires that:

> "The Steam and Feedwater Rupture Control System (SFRCS) instrumentation channels shown in Table 3.3-11 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-12 and with RESPONSE TIMES as shown in Table 3.3-13."

One of the SFRCS sensing instrumentation listed in Table 3.3-11 is the MS low pressure instrumentation channels. Table 3.3-12 lists a trip setpoint for the SFRCS MS low pressure trip signal as greater than or equal to 591.6 psig. A footnote in Table 3.3-11 for the low pressure instrumentation channels states that this instrumentation:

> "May be bypassed when steam pressure is below 650 psig. Bypass shall be automatically removed when the steam pressure exceeds 650 psig."

This proposed TS change will increase the steam pressure in the above footnote to 700 psig below which the SFRCS MS low pressure instrumentation can be manually bypassed. Additionally, the steam pressure above which the block permit is automatically removed will be increased to 750 psig.

The SFRCS MS low pressure instrumentation utilizes pressure switches to sense a low pressure condition in the MS piping. To ensure that these pressure switches actuate to satisfy the 591.6 psig TS requirement, an actual field setpoint of 612 psig is used for these components. The higher field setpoint accounts for instrument tolerance error and settability. Separate pressure switches are used for the MS low pressure block permit feature. These pressure switches allow the operator to manually bypass the SFRCS MS low pressure instrumentation during plant cooldown when the steam line pressure falls below 650 psig. Additionally, the pressure switches must automatically reset when MS line pressure exceeds 650 psig. Because the existing block permit setpoint and auto-removal setpoint is the same, no margin is provided for the reset dead band of these pressure switches in the Technical Specification.

As noted above, there are two block permit pressure switches for each SFRCS MS low pressure logic channel. Both switches associated with one Logic Channel need to actuate before the block permit so that the channel can be manually blocked by the operators. Since the block permit for an Actuation Channel utilizes pressure switches that are all located on one MS header while the MS low pressure trip instrumentation for the same Actuation Channel exists on both MS headers, the plant operators need to maintain approximately the same pressure in both SG's during plant cooldown. Failure to do this could cause the SG with the lower pressure

to experience MS low pressure trip of the SFRCS before the block permissive for the Actuation Channel on the opposite SG is allowed. Further, the block permit in both logic channels associated with an Actuation Channel needs to reset to automatically remove the block permit in its associated Actuation Channel; however, only one of the two pressure switches in each logic channel needs to automatically reset to re-activate the MS low pressure trip functions during plant heat-up.

With the present block permit value of 650 psig, the nominal pressure margin between it and the 612 psig field setpoint for the MS low pressure instrumentation is only 38 psi. Due to instrument inaccuracy, settability and drift associated with the pressure switches this small pressure margin creates the possibility of an inadvertent and spurious SFRCS MS low pressure actuation during plant cooldown and heatup operations. This, along with the need to depressurize both SGs together during cooldown as discussed above, places an unnecessary burden upon the operators to initiate the manual block permit as soon as allowable. The increased pressure margin obtained by raising the block permit value to 700 psig therefore minimizes the possibility of inadvertent and spurious SFRCS trips during both normal cooldown and emergency cooldown (e.g SG tube rupture event) scenarios. This would minimize the potential for isolating all main and auxiliary feedwater flow to one SG and initiating AFW flow to the other SG, thereby, minimizing challenges to safety equipment.

The primary purpose of the MS low pressure instrumentation of the SFRCS is steam line break detection and mitigation in Modes 1 and 2. During plant cooldown operations, the RCS temperature closely approaches the saturation temperature associated with the SG secondary side pressure. Consequently, the present block permit value of 650 psig corresponds to an RCS temperature of ~ 498°F. Since the nominal RCS temperature in Mode 3 immediately following a reactor trip is ~ 545°F which corresponds to the saturation temperature for the post-trip turbine bypass valve setpoint of 1015 psig, SFRCS main steam line break protection is available only for a duration associated with an approximately 50°F cooldown in Mode 3. Thus, the present block permit setpoint results in the SFRCS MS low pressure instrumentation channels being blocked over most of the RCS temperature range associated with Mode 3.

By raising the block permit setpoint to 700 psig, the RCS temperature at which the MS low pressure instrumentation can be blocked is increased from ~ 498°F to ~ 506°F. This represents increasing by only 8°F the range of RCS temperatures in Mode 3 where the MS low pressure instrumentation would be unavailable during cooldown operations. The RCS temperatures from 498°F to 506°F represent a range of transient plant operations in Mode 3 and do not represent temperatures in Mode 3 where the RCS would be stabilized for any long periods of time. Using a nominal cooldown rate of 15°F/hr, the raising of the block permit value to 700 psig would increase by less than 1 hr the period of time in Mode 3 where the MS low pressure instrumentation would be unavailable during a normal plant cooldown operation. The probability that a MSLB would occur in this short time period is extremely low.

By raising the automatic reset pressure of the MS low pressure trip instrumentation to 750 psig from 650 psig, the dead band associated with the resetting of the pressure switches does not become a limitation upon the block permit setpoint. Based upon past surveillance tests of the pressure switches, the switches used for the block permit feature typically reset within 20-30 psi above the block permit setpoint. Consequently, the proposed 50 psi difference between the block permit and automatic reset setpoints allows the block permit setpoint to be satisfied without having to lower its actual field setpoint due to the reset setpoint requirements of the Technical Specifications.

By raising the automatic reset value to 750 psig, the RCS temperature at which the block permit automatically resets is increased from ~ 498°F to ~ 513°F. This increases by 15°F the range of RCS temperature in Mode 3 where the MS low pressure instrumentation would be unavailable during heat-up operations. However, it still ensures that the automatic reset occurs before the plant enters Mode 2 since per T.S. 3.1.1.4 the plant is not allowed to go critical until RCS T_{avg} is greater than or equal to 525°F.

Using a nominal heat-up rate of 15°F/hr, the raising of the automatic reset setpoint to 750 psig would increase the time period during heat-up where the MS low pressure instrumentation is blocked by approximately 1 hr. As with the increased time period associated with plant cooldown operations, this time period is so short that the probability of a MSLB during this interval is extremely low.

Since during normal plant operation in Modes 1 and 2 the MS line pressure is typically 870 psig, the raising of the block permit pressure to 700 psig and the automatic reset to 750 psig has no impact upon plant operation in Modes 1 and 2. Use of the block permit in Modes 1 and 2 is not possible due to the large difference in pressure between its setpoint and the normal MS operating pressure. Consequently, the protection against MSLBs during power operation provided by the MS low pressure instrumentation is unaffected by the proposed change.

Unreviewed Safety Question Evaluation

Revising the Technical Specifications as proposed and changing the SFRCS MS low pressure trip block permit and automatic reset setpoints will not increase the probability of an accident previously evaluated in the USAR because the associated pressure switches do not initiate any accident previously analyzed in the USAR. The pressure switch only allows a manual bypass function for the MS low pressure trip switches to be performed by the operators. Additionally, the potential for an inadvertent SFRCS MS low pressure trip which can cause a loss of main and auxiliary feedwater to one steam generator, during plant cooldown operations will be reduced (10CFR50.59(a)(2)(i)).

Revising the Technical Specifications as proposed and changing the SFRCS MS low pressure block permit and automatic reset setpoints will not increase the consequences of an accident previously evaluated in the USAR because the setpoint change does not affect the assumptions or effects of the USAR accident analysis. The bounding USAR analysis for this SFRCS instrumentation is a MSLB at full power operation. The MS low pressure trip function of the SFRCS instrumentation is automatically reset during startup and power operation. The proposed setpoint change does not reduce the ability of SFRCS to mitigate the consequences of the MSLB accident analysis provided in the USAR. The setpoint changes do increase the time in Mode 3 where the MS low pressure trip protection is not available. However, as evidenced by the present setpoint, this SFRCS trip is not required in Mode 3, since the period of time the plant is in Mode 3 is small and the likelihood of an MSLB in Mode 3 is extremly low (10CFR50.59(a)(2)(i)).

Revising the Technical Specifications as proposed will not increase the probability of a malfunction of equipment important to safety because this setpoint change does not alter the safety function of SFRCS or related equipment. No equipment modifications are required. The setpoint of the existing instrumentation will be reset to the new value. SFRCS surveillance requirements will be revised to reflect the setpoint change. Redundancy and reliability of SFRCS instrumentation has not been reduced. The probability of malfunction of equipment important to safety is actually reduced because inadvertant challenges to the SFRCS and AFWS are minimized during plant heat-up and cooldown (10CFR50.59(a)(2)(i)).

Revising the Technical Specifications as proposed will not increase the consequences of a malfunction of equipment important to safety because all previously analyzed events, with appropriate failures included, remain within the bounds of the USAR. The reset value of the pressure switches has not been increased above the minimum operating pressure of the MS. The SFRCS low pressure trip continues to be automatically reset during startup and power operation. Therefore, the consequences of a malfunction of equipment important to safety have not been affected (10CFR50.59(a)(2)(i)).

Revising the Technical Specifications as proposed will not create a possibility for an accident of a different type than any previously evaluated in the USAR because the setpoint change does not alter the safety function of SFRCS or any associated systems. The revised setpoint provides the same function as before and does not introduce failure modes that are not bounded by existing USAR analyzed events (10CFR50.59(a)(2)(ii)).

Revising the Technical Specifications as proposed will not create the possibility of a malfunction of a different type than any evaluated previously in the USAR because the new setpoint provides the same reset safety function as before. SFRCS instrumentation function is not changed by this setpoint revision. The SFRCS and associated systems will continue to provide the safety functions presently discussed in the USAR (10CFR50.59(a)(2)(ii)).

Revising the Technical Specifications as proposed and changing the SFRCS low pressure permissive bypass setpoint will not reduce the margin of safety as defined in the bases for any Technical Specification because the setpoint change does not affect any of the bases for TS 3.3.2.2 and is not associated with the bases for any other Technical Specifications. The operability requirement of TS 3.3.2.2 bases have not been affected. All TS surveillance requirements will be met by revising the appropriate plant surveillance procedures to reflect a setpoint change of 700 psig for the block permit and 750 psig for the automatic reset. In addition, the potential for inadvertent challenges to the SFRCS and AFW system is reduced by this setpoint change. The reset value of the pressure switches has not been increased above the minimum operating pressure of the MS. The SFRCS low pressure trip continues to be automatically reset during startup and power operation. (10CFR50.59(a)(2)(iii)).

Conclusion

Based on the above evaluation, the proposed TS change does not constitute an unreviewed safety question.

References

Davis-Besse Nuclear Power Station, Unit No. 1, Operating License, Appendix A, Technical Specifications

Davis-Besse Nuclear Power Station, Unit No. 1, Updated Safety Analysis Report, July 1987

IEEE Standard 279-1971 Criteria for Protection Systems for Nuclear Power Generating Systems

Decay Heat Removal Task Force Final Report of October 15, 1985

SIGNIFICANT HAZARDS CONSIDERATION

Description

The purpose of this Significant Hazards Consideration is to review the proposed change to the Davis-Besse Nuclear Power Station Unit No. 1 Technical Specifications (TS) to ensure that the change does not constitute a significant hazards consideration. The proposed TS change is to increase the Steam and Feedwater Rupture Control System (SFRCS) Main Steam (MS) low pressure block permit setpoint specified in TS Table 3.3-11 from 650 psig to 700 psig and to increase the steam pressure where the block permit is automatically removed from 650 psig to 750 psig. This change will increase the pressure margin between the SFRCS block permit and the SFRCS MS low pressure trip setpoints; thereby, minimizing the possibility of an inadvertent MS low pressure trip from occurring during plant cooldown operations.

Systems and Components Affected

Steam and Feedwater Rupture Control System (SFRCS)

Documents Affected

Davis-Besse Nuclear Power Station, Unit No. 1, Operating License, Appendix A, Technical Specifications

Davis-Besse Nuclear Power Station, Unit No. 1, Updated Safety Analysis Report, July 1987

Safety Functions Affected

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The SFRCS consists of four identical sensing and logic channels housed in two electrically separate cabinets. Each cabinet consists of two redundant sensing and logic channels. Logic Channels 1 and 3 are located in Cabinet 1 and form Actuation Channel 1 (predominantly SG 1). Logic Channels 2 and 4 are located in Cabinet 2 and form Actuation Channel 2 (predominantly SG 2).

The sensing channels consist of the instrumentation used to monitor the various parameters which provide inputs to the logic channels. These inputs include:

- SG high and low water level
- MS low pressure
- SG to MFW differential pressure
- RCP high and low motor current

The only SFRCS sensing instrumentation relevant to this proposed change is the MS low pressure signal.

A MS low pressure trip of an Actuation Channel of SFRCS during plant operation would be indicative of a main steam line break (MSLB). The MS low pressure trip instrumentation includes pressure switches for all four SFRCS logic channels on each MS header. A trip of single pressure switches in both Logic Channels 1 and 3 on a MS header would cause a trip of SFRCS Actuation Channel 1; whereas, a trip of single pressure switches in both Logic Channels 2 and 4 on a MS header would cause a trip of SFRCS Actuation Channel 2. An SFRCS Actuation Channel trip would cause the complete isolation of the SG connected to the MS header experiencing the trip signal, the re-alignment of the affected SG's AFW pump to the opposite SG, and the initiation of AFW to the unaffected SG. It would also isolate the main steam line isolation valve and selected main feedwater valves on the unaffected SG.

The SFRCS also includes a manual low pressure block permissive feature that allows the operator to block the SFRCS MS low pressure trip signal during plant cooldown. This manual operator action is intended to prevent inadvertent actuation and unnecessary challenges to SFRCS and associated systems during plant cooldown. Each MS header contains four pressure switches for the block permissive signal. Two of these pressure switches are associated with a single SFRCS Logic Channel; and the remaining two pressure switches on that MS header are associated with the complimentary logic channel in that Actuation Channel. This results in the four pressure switches for the block permit on the MS header for SG 1 being used to block Actuation Channel 1 and the four pressure switches on the MS header for SG 2 being used to block Actuation Channel 2. Once a block permit for a channel is received, manual action is required to actually block that channel from tripping. As required to comply with IEEE Standard 279-1971 for a protection system and to satisfy the Technical Specification requirements, during plant heatup the SFRCS low pressure block signal is automatically removed. This action ensures that the safety function of the SFRCS MS low pressure trip signal is activated automatically during heat-up operations and remains activated when the plant is critical in either Modes 1 or 2.

Effects on Safety

DBNPS Technical Specifications, Limiting Condition for Operation 3.3.2.2 requires that:

> "The Steam and Feedwater Rupture Control System (SFRCS) instrumentation channels shown in Table 3.3-11 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-12 and with RESPONSE TIMES as shown in Table 3.3-13."

One of the SFRCS sensing instrumentation listed in Table 3.3-11 is the MS low pressure instrumentation channels. Table 3.3-12 lists a trip setpoint for the SFRCS MS low pressure trip signal as greater than or equal to 591.6 psig. A footnote in Table 3.3-11 for the low pressure instrumentation channels states that this instrumentation:

> "May be bypassed when steam pressure is below 650 psig. Bypass shall be automatically removed when the steam pressure exceeds 650 psig."

This proposed TS change will increase the steam pressure in the above footnote to 700 psig below which the SFRCS MS low pressure instrumentation can be manually bypassed. Additionally, the steam pressure above which the block permit is automatically removed will be increased to 750 psig.

The SFRCS MS low pressure instrumentation utilizes pressure switches to sense a low pressure condition in the MS piping. To ensure that these pressure switches actuate to satisfy the 591.6 psig TS requirement, an actual field setpoint of 612 psig is used for these components. The higher field setpoint accounts for instrument tolerance error and settability. Separate pressure switches are used for the MS low pressure block permit feature. These pressure switches allow the operator to manually bypass the SFRCS MS low pressure instrumentation during plant cooldown when the steam line pressure falls below 650 psig. Additionally, the pressure switches must automatically reset when MS line pressure exceeds 650 psig. Because the existing block permit setpoint and auto-removal setpoint is the same, no margin is provided for the reset dead band of these pressure switches in the Technical Specification.

As noted above, there are two block permit pressure switches for each SFRCS MS low pressure logic channel. Both switches associated with one Logic Channel need to actuate before the block permit so that the channel can be manually blocked by the operators. Since the block permit for an Actuation Channel utilizes pressure switches that are all located on one MS header while the MS low pressure trip instrumentation for the same Actuation Channel exists on both MS headers, the plant operators need to maintain approximately the same pressure in both SG's during plant cooldown. Failure to do this could cause the SG with the lower pressure

to experience MS low pressure trip of the SFRCS before the block permissive for the Actuation Channel on the opposite SG is allowed. Further, the block permit in both logic channels associated with an Actuation Channel needs to reset to automatically remove the block permit in its associated Actuation Channel; however, only one of the two pressure switches in each logic channel needs to automatically reset to re-activate the MS low pressure trip functions during plant heat-up.

With the present block permit value of 650 psig, the nominal pressure margin between it and the 612 psig field setpoint for the MS low pressure instrumentation is only 38 psi. Due to instrument inaccuracy, settability and drift associated with the pressure switches this small pressure margin creates the possibility of an inadvertent and spurious SFRCS MS low pressure actuation during plant cooldown and heatup operations. This, along with the need to depressurize both SGs together during cooldown as discussed above, places an unnecessary burden upon the operators to initiate the manual block permit as soon as allowable. The increased pressure margin obtained by raising the block permit value to 700 psig therefore minimizes the possibility of inadvertent and spurious SFRCS trips during both normal cooldown and emergency cooldown (e.g SG tube rupture event) scenarios. This would minimize the potential for isolating all main and auxiliary feedwater flow to one SG and initiating AFW flow to the other SG, thereby, minimizing challenges to safety equipment.

The primary purpose of the MS low pressure instrumentation of the SFRCS is steam line break detection and mitigation in Modes 1 and 2. During plant cooldown operations, the RCS temperature closely approaches the saturation temperature associated with the SG secondary side pressure. Consequently, the present block permit value of 650 psig corresponds to an RCS temperature of ~ 498°F. Since the nominal RCS temperature in Mode 3 immediately following a reactor trip is ~ 545°F which corresponds to the saturation temperature for the post-trip turbine bypass valve setpoint of 1015 psig, SFRCS main steam line break protection is available only for a duration associated with an approximately 50°F cooldown in Mode 3. Thus, the present block permit setpoint results in the SFRCS MS low pressure instrumentation channels being blocked over most of the RCS temperature range associated with Mode 3.

By raising the block permit setpoint to 700 psig, the RCS temperature at which the MS low pressure instrumentation can be blocked is increased from ~ 498°F to ~ 506°F. This represents increasing by only 8°F the range of RCS temperatures in Mode 3 where the MS low pressure instrumentation would be unavailable during cooldown operations. The RCS temperatures from 498°F to 506°F represent a range of transient plant operations in Mode 3 and do not represent temperatures in Mode 3 where the RCS would be stabilized for any long periods of time. Using a nominal cooldown rate of 15°F/hr, the raising of the block permit value to 700 psig would increase by less than 1 hr the period of time in Mode 3 where the MS low pressure instrumentation would be unavailable during a normal plant cooldown operation. The probability that a MSLB would occur in this short time period is extremely low.

By raising the automatic reset pressure of the MS low pressure trip instrumentation to 750 psig from 650 psig, the dead band associated with the resetting of the pressure switches does not become a limitation upon the block permit setpoint. Based upon past surveillance tests of the pressure switches, the switches used for the block permit feature typically reset within 20-30 psi above the block permit setpoint. Consequently, the proposed 50 psi difference between the block permit and automatic reset setpoints allows the block permit setpoint to be satisfied without having to lower its actual field setpoint due to the reset setpoint requirements of the Technical Specifications.

By raising the automatic reset value to 750 psig, the RCS temperature at which the block permit automatically resets is increased from ~ 498°F to ~ 513°F. This increases by 15°F the range of RCS temperature in Mode 3 where the MS low pressure instrumentation would be unavailable during heat-up operations. However, it still ensures that the automatic reset occurs before the plant enters Mode 2 since per T.S. 3.1.1.4 the plant is not allowed to go critical until RCS T_{avg} is greater than or equal to 525°F.

Using a nominal heat-up rate of 15°F/hr, the raising of the automatic reset setpoint to 750 psig would increase the time period during heat-up where the MS low pressure instrumentation is blocked by approximately 1 hr. As with the increased time period associated with plant cooldown operations, this time period is so short that the probability of a MSLB during this interval is extremely low.

Since during normal plant operation in Modes 1 and 2 the MS line pressure is typically 870 psig, the raising of the block permit pressure to 700 psig and the automatic reset to 750 psig has no impact upon plant operation in Modes 1 and 2. Use of the block permit in Modes 1 and 2 is not possible due to the large difference in pressure between its setpoint and the normal MS operating pressure. Consequently, the protection against MSLBs during power operation provided by the MS low pressure instrumentation is unaffected by the proposed change.

Significant Hazards Consideration

The proposed change does not involve a significant hazards consideration because the operation of the Davis-Besse Nuclear Power Station, Unit No. 1, in accordance with these changes would not:

Involve a significant increase in the probability or consequences of an accident previously evaluated because the pressure switches associated with the change do not initiate any accident previously analyzed. The pressure switches only allow a manual bypass function for the MS low pressure trip switches to be performed by the operators. These trip switches provide a mitigating function in the event of a MSLB. Additionally, the potential for an inadvertent SFRCS MS low pressure trip during plant cooldown operations will be reduced (10CFR50.92(c)(1)).

Create the possibility of a new or different kind of accident from any accident previously evaluated because the setpoint change does not alter the safety function of SFRCS or any associated systems. The revised setpoints provide the same function as before and do not introduce failure modes that are not bounded by existing analyzed events (10CFR50.92(c)(2)).

Involve a significant reduction in a margin of safety because the change minimizes the possibility of an unnecessary actuation of the AFW system during plant cooldown and heat-up operations. The change in the setpoints has no impact upon the availability of SFRCS during plant power operations and does not appreciably increase the time period in Mode 3 where the SFRCS main steam low pressure trip signal is blocked (10CFR50.92(c)(3)).

Conclusion

On the basis of the above, Toledo Edison has determined that the amendment request does not involve a significant hazards consideration.