

ATTACHMENT A-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 195/60

Revise the Technical Specification as follows:

Remove Page

3/4 4-4a

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B3/4 4-1

Insert Page

3/4 4-4a

3/4 4-4b

B3/4 4-1

REACTOR COOLANT SYSTEM

REACTOR COOLANT PUMP STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.6 If both OPPS PORV's are not OPERABLE, an idle reactor coolant pump in a non-isolated loop shall not be started, unless:

1. The actual pressurizer water level is less than 60 percent (840 ft³), and
2. The secondary water temperature* of each steam generator is less than 25°F above each of the in-service RCS cold leg temperatures.

APPLICABILITY: When the temperature of one or more of the non-isolated loop cold legs is \leq the enable temperature set forth in Specification 3.4.9.3.

ACTION:

With the pressurizer water level greater than or equal to 60 percent or the temperature of the steam generator in the loop associated with the reactor coolant pump being started greater than or equal to 25° above the cold leg temperature of the other non-isolated loops, suspend the startup of the reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.4.1.6.1 The pressurizer water volume and the secondary water temperature of the non-isolated steam generators shall be determined within ten minutes prior to starting a reactor coolant pump.

* The secondary water temperature is to be verified by direct measurement of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping. *With one or more reactor coolant pumps in operation measurement of the differential temperature is not required prior to starting additional pumps.*

REACTOR COOLANT SYSTEM

REACTOR COOLANT PUMP-STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.6⁷ An idle reactor coolant pump in a non-isolated loop shall not be started, unless the secondary water temperature* of each steam generator is less than 50°F above each of the inservice RCS cold leg temperatures.

APPLICABILITY: When the temperature of one or more of the non-isolated loop cold legs is ≤ 25 350°F.

ACTION:

** the enable temperature
or equal to 25*

With the temperature of the steam generator in the loop associated with the reactor coolant pump being started greater than 50°F above the cold leg temperature of the other non-isolated loops, suspend the startup of the reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.4.1.6.1⁷ The secondary water temperature of the non-isolated steam generators shall be determined within 10 minutes prior to starting a reactor coolant pump.

*The secondary water temperature is to be verified by direct measurement of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping.

*With one or more reactor coolant pumps in operation
measurement of the differential temperature is not required
prior to starting additional pumps.*

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.1 REACTOR COOLANT LOOPS

The plant is designed to operate with all reactor coolant loops in operation and maintain DNBR above the design DNBR limit during all normal operations and anticipated transients. In Modes 1 and 2, with one reactor coolant loop not in operation, THERMAL POWER is restricted to ≤ 31 percent of RATED THERMAL POWER until the Overtemperature ΔT trip is reset. Either action ensures that the DNBR will be maintained above the design DNBR limit. A loss of flow in two loops will cause a reactor trip if operating above P-7 (11 percent of RATED THERMAL POWER) while a loss of flow in one loop will cause a reactor trip if operating above P-8 (31 percent of RATED THERMAL POWER).

In MODE 3, a single reactor coolant loop provides sufficient heat removal capability for removing decay heat; however, due to the initial conditions assumed in the analysis for the control rod bank withdrawal from a subcritical condition, two operating coolant loops are required to meet the DNB design basis for this Condition II event.

In MODES 4 and 5, a single reactor coolant loop or RHR subsystem provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops be OPERABLE. Thus, if the reactor coolant loops are not OPERABLE, this specification requires two RHR loops to be OPERABLE.

The operation of one Reactor Coolant Pump or one RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of operator recognition and control.

the enable temperature

with two PORV's OPERABLE

The restrictions on starting a Reactor Coolant Pump with one or more RCS cold legs less than or equal to ~~275°F~~ are provided to prevent RCS pressure transients, caused by energy additions from the secondary system, which could exceed the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients and will not exceed the limits of Appendix G by restricting starting of the RCP's to when the secondary water temperature of each steam generator is less than 25°F above each of the RCS cold leg temperatures. The RCS will be protected against overpressure transients with one or NO PORV's OPERABLE and will not exceed the limits

ATTACHMENT A-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 195/60

Revise the Technical Specification as follows:

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3/4 4-7

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3/4 4-7

REACTOR COOLANT SYSTEM

REACTOR COOLANT PUMP-STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.6 An idle reactor coolant pump in a non-isolated loop shall not be started, unless the secondary water temperature* of each steam generator is less than 50°F above each of the inservice RCS cold leg temperatures.

APPLICABILITY: When the temperature of one or more of the non-isolated loop cold legs is $\leq 350^{\circ}\text{F}$.

ACTION:

With the temperature of the steam generator in the loop associated with the reactor coolant pump being started greater than 50°F above the cold leg temperature of the other non-isolated loops, suspend the startup of the reactor coolant pump. *or equal to*

SURVEILLANCE REQUIREMENTS

4.4.1.6.1 The secondary water temperature of the non-isolated steam generators shall be determined within 10 minutes prior to starting a reactor coolant pump.

*The secondary water temperature is to be verified by direct measurement of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping.

With one or more reactor coolant pumps in operation measurement of the differential temperature is not required prior to starting additional pumps.

ATTACHMENT B

Beaver Valley Power Station, Unit Nos. 1 and 2 Proposed Technical Specification Change No. 195/60 REVISION OF SPECIFICATION 3.4.1.6 AND ADDITION OF BV-1 SPECIFICATION 3.4.1.7

A. DESCRIPTION OF AMENDMENT REQUEST

The proposed amendment would modify Specification 3.4.1.6 for both units to allow starting additional reactor coolant pumps (RCPs) without measurement of the differential temperature. BV-1 Specification 3.4.1.7 has been added to provide a differential temperature limit of less than 25°F starting a RCP and allows starting additional RCPs without measurement of the differential temperature. BV-1 Bases 3/4.4.1 has been revised to address starting criteria with and without two power operated relief valves (PORVs) operable.

B. BACKGROUND

Measurement of the differential temperature in accordance with Specification 3.4.1.6 and the new BV-1 Specification 3.4.1.7 requires a containment entry by plant operators for each RCP startup. The RCPs are not normally started in a succession that would allow an operator to perform the required measurements in a reasonable period of time, therefore, multiple containment entries are required to satisfy this requirement. The proposed change reduces the number of required containment entries and is consistent with the "as low as reasonably achievable" (ALARA) program which strives to reduce the doses received by plant personnel.

BV-1 Specification 3.4.1.6 was added by Amendment No. 96 to address overpressure protection system (OPPS) concerns related to the heat input event where less than 2 PORVs are operable and heat is transferred from a hot steam generator to the reactor coolant system (RCS) during RCP startup. The analysis performed as a basis for this change was only performed for BV-1 and does not apply for BV-2. In reviewing the BV-1 analysis it was determined that the requirement to limit RCP startup, similar to BV-2 Specification 3.4.1.6, also applies to BV-1 with a differential temperature of less than 25°F. Therefore, Specification 3.4.1.7 has been added to provide requirements consistent with BV-2 and reflect the current plant operating procedures.

The change to BV-1 Bases 3/4.4.1 has been revised to separately address the RCP startup requirements. Specification 3.4.1.6 applies when starting a RCP with less than 2 PORVs operable and Specification 3.4.1.7 applies at all times when starting a RCP.

C. JUSTIFICATION

Measurement of the secondary to primary water temperature differential prior to starting a RCP is only required when starting the first pump. Once one pump is operating this pump

provides the forward flow in the active loop and creates a reverse flow in the inactive loops to conduct the transfer of heat between the primary system and the shell side of the steam generators until temperature equilibrium is established. The primary to secondary temperature difference will always be less than the maximum difference prior to the start of the first pump. Therefore, with one pump in operation there is no need to measure the temperature difference prior to starting additional pumps.

Specification 3.4.1.7 has been added to the BV-1 technical specifications to reflect the requirements of BV-2 Specification 3.4.1.6 and ensure the 25°F temperature differential is applicable when starting a RCP. This change has been added to reflect the analysis assumptions and the current plant operating procedure requirements.

BV-1 Bases 3/4.4.1 has been modified to clarify the differences between Specifications 3.4.1.6 and 3.4.1.7 to document the basis for these requirements.

D. SAFETY ANALYSIS

Specification 3.4.1.6 for both units has been modified and a new BV-1 Specification 3.4.1.7 has been added to require measurement of the secondary to primary water differential temperature only when starting the first RCP. This is a change from the current requirements where the temperature difference must be determined prior to starting each pump. The basis for measuring the temperature difference is to satisfy the analysis assumption which uses a maximum temperature difference of 25°F, however, once one RCP is in operation sufficient flow is generated through out all of the loops to bring the steam generators and the RCS temperatures into equilibrium. The primary to secondary temperature difference will always be less than the maximum difference observed prior to the start of the first pump, therefore, this change is consistent with the accident analysis assumptions and will not affect the UFSAR.

BV-2 Specification 3.4.1.6 provides RCP startup criteria and limits the temperature difference between the steam generator and the RCS cold legs to 50°F. A similar requirement is being added to the BV-1 technical specifications in Specification 3.4.1.7 which limits the temperature difference to less than 25°F. This temperature difference reflects that assumed in the accident analysis and the proposed Limiting Condition for Operation, Applicability, Action and Surveillance Requirements are consistent with the BV-2 requirements. This specification will provide the RCP startup requirements to ensure the accident analysis assumptions are met and will not affect the UFSAR.

A change has been added to BV-1 Bases 3/4.4.1 to describe the differences between the requirements identified in Specifications 3.4.1.6 and 3.4.1.7. Specification 3.4.1.6 provides restrictions on starting a RCP when less than 2 PORVs are operable by requiring a pressurizer water level less than 60 percent and the temperature difference between the steam generators and the RCS cold legs less than 25°F. Specification 3.4.1.7 also provides restrictions on starting a RCP and is applied when 2 PORVs are operable by limiting the maximum temperature difference between the steam generators and the RCS cold legs to less than 25°F. These Bases changes are consistent with the specification requirements, the accident analysis assumptions, and the plant RCP startup procedure and will not affect the UFSAR.

Based on the above considerations, the OPPS accident analysis assumptions are satisfied with respect to the heat input event from a RCP startup, therefore, the proposed changes are considered to be safe and will not reduce the safety of the plant.

E. NO SIGNIFICANT HAZARDS EVALUATION

The no significant hazard considerations involved with the proposed amendment have been evaluated, focusing on the three standards set forth in 10 CFR 50.92(c) as quoted below:

The Commission may make a final determination, pursuant to the procedures in paragraph 50.91, that a proposed amendment to an operating license for a facility licensed under paragraph 50.21(b) or paragraph 50.22 or for a testing facility involves no significant hazards consideration, if operation of the facility in accordance with the proposed amendment would not:

- (1) Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- (2) Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- (3) Involve a significant reduction in a margin of safety.

The following evaluation is provided for the no significant hazards consideration standards.

1. Does the change involve a significant increase in the probability or consequences of an accident previously evaluated?

Specification 3.4.1.6 for both units has been modified and a new BV-1 Specification 3.4.1.7 has been added to require a one time measurement of the secondary to primary water differential temperature prior to starting the reactor

coolant pumps (RCP). The requirement to measure the differential temperature reflects the accident analysis assumption for the overpressure protection system (OPPS) heat input event related to the transfer of heat from the secondary side to the primary side when starting a RCP. Following the start of one pump, sufficient flow is generated throughout all of the loops to bring the primary side and secondary side into thermal equilibrium. When starting additional pumps the temperature difference will always be less than the maximum difference observed prior to the start of the first pump, therefore, the requirement to determine the differential temperature prior to starting each additional pump is redundant and has been deleted. This change remains consistent with the accident analysis assumptions and will not affect the UFSAR, therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

A new BV-1 Specification 3.4.1.7 has been added to limit the temperature difference to less than 25°F when starting a RCP. This new specification is similar to BV-2 Specification 3.4.1.6 and reflects the temperature difference assumed in the accident analysis. This specification incorporates a RCP startup requirement assumed in the accident analysis, is consistent with current plant operating procedures and will not affect the UFSAR, therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

BV-1 Bases 3/4.4.1 has been revised to describe the differences between Specification 3.4.1.6 and Specification 3.4.1.7. Specification 3.4.1.6 provides restrictions on starting a RCP when less than 2 PORVs are operable and Specification 3.4.1.7 provides restrictions when 2 PORVs are operable. These Bases changes are consistent with the specification requirements, the accident analysis assumptions, and the plant RCP startup procedures and will not affect the UFSAR, therefore, this change will not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed changes are consistent with the accident analysis assumptions and the plant RCP startup procedures and reflect those requirements provided in the BV-2 specifications. These changes will not adversely affect the reliability of the RCPs or the RCP startup procedures, therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Does the change involve a significant reduction in a margin of safety?

The RCP startup requirements have been modified to allow plant operating flexibility by reducing redundant requirements and incorporating changes in accordance with the accident analysis assumptions to ensure the reactor coolant system will not be subjected to an overpressure condition when a RCP is started. Plant operation will be maintained within required limits to ensure that the plant safety basis is not, therefore, the proposed changes do not involve a significant reduction in a margin of safety.

SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

On the considerations expressed above, it is concluded that the activities associated with this license amendment request satisfies the no significant hazards consideration standards of 10 CFR 50.92(c) and, accordingly, a no significant hazards consideration finding is justified.

ATTACHMENT C-1

Beaver Valley Power Station, Unit No. 1
Proposed Technical Specification Change No. 195/60

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B 3/4 4-1

REACTOR COOLANT SYSTEM

REACTOR COOLANT PUMP STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.6 If both OPPS PORV's are not OPERABLE, an idle reactor coolant pump in a non-isolated loop shall not be started, unless:

1. The actual pressurizer water level is less than 60 percent (840 ft³), and
2. The secondary water temperature* of each steam generator is less than 25°F above each of the in-service RCS cold leg temperatures.

APPLICABILITY: When the temperature of one or more of the non-isolated loop cold legs is \leq the enable temperature set forth in Specification 3.4.9.3.

ACTION:

With the pressurizer water level greater than or equal to 60 percent or the temperature of the steam generator in the loop associated with the reactor coolant pump being started greater than or equal to 25° above the cold leg temperature of the other non-isolated loops, suspend the startup of the reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.4.1.6.1 The pressurizer water volume and the secondary water temperature of the non-isolated steam generators shall be determined within ten minutes prior to starting a reactor coolant pump.

* The secondary water temperature is to be verified by direct measurement of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping. With one or more reactor coolant pumps in operation measurement of the differential temperature is not required prior to starting additional pumps.

REACTOR COOLANT SYSTEM

REACTOR COOLANT PUMP-STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.7 An idle reactor coolant pump in a non-isolated loop shall not be started, unless the secondary water temperature* of each steam generator is less than 25°F above each of the inservice RCS cold leg temperatures.

APPLICABILITY: When the temperature of one or more of the non-isolated loop cold legs is \leq the enable temperature.

ACTION:

With the temperature of the steam generator in the loop associated with the reactor coolant pump being started greater than or equal to 25°F above the cold leg temperature of the other non-isolated loops, suspend the startup of the reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.4.1.7.1 The secondary water temperature of the non-isolated steam generators shall be determined within 10 minutes prior to starting a reactor coolant pump.

* The secondary water temperature is to be verified by direct measurement of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping. With one or more reactor coolant pumps in operation measurement of the differential temperature is not required prior to starting additional pumps.

3/4.4 REACTOR COOLANT SYSTEM

BASES

3/4.4.1 REACTOR COOLANT LOOPS

The plant is designed to operate with all reactor coolant loops in operation and maintain DNBR above the design DNBR limit during all normal operations and anticipated transients. In Modes 1 and 2, with one reactor coolant loop not in operation, THERMAL POWER is restricted to ≤ 31 percent of RATED THERMAL POWER until the Overtemperature ΔT trip is reset. Either action ensures that the DNBR will be maintained above the design DNBR limit. A loss of flow in two loops will cause a reactor trip if operating above P-7 (11 percent of RATED THERMAL POWER) while a loss of flow in one loop will cause a reactor trip if operating above P-8 (31 percent of RATED THERMAL POWER).

In MODE 3, a single reactor coolant loop provides sufficient heat removal capability for removing decay heat; however, due to the initial conditions assumed in the analysis for the control rod bank withdrawal from a subcritical condition, two operating coolant loops are required to meet the DNB design basis for this Condition II event.

In MODES 4 and 5, a single reactor coolant loop or RHR subsystem provides sufficient heat removal capability for removing decay heat; but single failure considerations require that at least two loops be OPERABLE. Thus, if the reactor coolant loops are not OPERABLE, this specification requires two RHR loops to be OPERABLE.

The operation of one Reactor Coolant Pump or one RHR pump provides adequate flow to ensure mixing, prevent stratification and produce gradual reactivity changes during boron concentration reductions in the Reactor Coolant System. The reactivity change rate associated with boron reduction will, therefore, be within the capability of operator recognition and control.

The restrictions on starting a Reactor Coolant Pump with one or more RCS cold legs less than or equal to the enable temperature are provided to prevent RCS pressure transients, caused by energy additions from the secondary system, which could exceed the limits of Appendix G to 10 CFR Part 50. The RCS will be protected against overpressure transients with two PORV's OPERABLE and will not exceed the limits of Appendix G by restricting starting of the RCP's to when the secondary water temperature of each steam generator is less than 25°F above each of the RCS cold leg temperatures. The RCS will be protected against overpressure transients with one or no PORV's OPERABLE and will not exceed the limits

ATTACHMENT C-2

Beaver Valley Power Station, Unit No. 2
Proposed Technical Specification Change No. 195/60

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REACTOR COOLANT SYSTEM

REACTOR COOLANT PUMP-STARTUP

LIMITING CONDITION FOR OPERATION

3.4.1.6 An idle reactor coolant pump in a non-isolated loop shall not be started, unless the secondary water temperature* of each steam generator is less than 50°F above each of the inservice RCS cold leg temperatures.

APPLICABILITY: When the temperature of one or more of the non-isolated loop cold legs is $\leq 330^{\circ}\text{F}$.

ACTION:

With the temperature of the steam generator in the loop associated with the reactor coolant pump being started greater than or equal to 50°F above the cold leg temperature of the other non-isolated loops, suspend the startup of the reactor coolant pump.

SURVEILLANCE REQUIREMENTS

4.4.1.6.1 The secondary water temperature of the non-isolated steam generators shall be determined within 10 minutes prior to starting a reactor coolant pump.

* The secondary water temperature is to be verified by direct measurement of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping. With one or more reactor coolant pumps in operation measurement of the differential temperature is not required prior to starting additional pumps.