FENOC

FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
P.O. Box 4
Shippingport, PA 15077-0004

Lew W. Myers
Senior Vice President

724-682-5234
Fax: 724-643-8069

November 8, 2000

L-00-131

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555-0001

Subject: Beaver Valley Power Station, Unit No. 1 and No. 2
BV-1 Docket No. 50-334, License No. DPR-66
BV-2 Docket No. 50-412, License No. NPF-73
License Amendment Request Nos. 276 and 157

Pursuant to 10 CFR 50.90 FirstEnergy Nuclear Operating Company (FENOC) requests an amendment to the above licenses in the form of changes to the Unit 1 and Unit 2 Technical Specifications and Bases. The proposed amendment will delete Technical Specification 3/4.4.1.6, Reactor Coolant Pump Startup, from the Beaver Valley Power Station (BVPS) Technical Specifications. This will be accomplished by moving the secondary side water temperature to cold leg temperature difference Reactor Coolant Pump (RCP) start requirement to existing Reactor Coolant System (RCS) Technical Specifications and deleting the pressurizer level requirement from Unit 1 Technical Specification 3/4.4.1.6. Unit 2 Technical Specification 3/4.4.1.6 does not contain the pressurizer level requirement. The RCS Technical Specifications affected are Technical Specifications 3/4.4.1.2, Reactor Coolant System – Hot Standby (for Unit 2 only) and 3/4.4.1.3, Reactor Coolant System – Shutdown (both units). The Bases for each unit will also be modified to incorporate requirements presently contained in Technical Specification 3/4.4.1.6. Editorial changes are also being made to achieve consistency between the two units and with the NUREG-0452, "Standard Technical Specifications for Westinghouse Pressurized Water Reactors," and NUREG-1431, "Standard Technical Specifications - Westinghouse Plants, Revision 1."

The proposed technical specification changes for Unit No. 1 and Unit No. 2 are presented in Attachments A-1 and A-2, respectively. The safety analysis and no significant hazard evaluation is presented in Attachment B.

This change has been reviewed by the Beaver Valley review committees. The change was determined to be safe and does not involve a significant hazard consideration as defined in 10 CFR 50.92 based on the attached safety analysis and no significant hazard evaluation. An implementation period of up to 60 days is requested following the effective date of this amendment.

A001

If there are any questions concerning this matter, please contact Mr. Thomas S. Cosgrove, Manager, Licensing at 724-682-5203.

Sincerely,

for

Lew W. Myers

c: Mr. L. J. Burkhart, Project Manager
Mr. D. M. Kern, Sr. Resident Inspector
Mr. H. J. Miller, NRC Region I Administrator
Mr. D. A. Allard, Director BRP/DEP
Mr. L. E. Ryan (BRP/DEP)

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I, J. Randel Fast, being duly sworn, state that I am Director, Plant Maintenance of FirstEnergy Nuclear Operating Company (FENOC), that I am authorized to sign and file this submittal with the Nuclear Regulatory Commission on behalf of FENOC, and that the statements made and the matters set forth herein pertaining to FENOC are true and correct to the best of my knowledge and belief.

FirstEnergy Nuclear Operating Company

J. Randel Fast
Director, Plant Maintenance - FENOC

COMMONWEALTH OF PENNSYLVANIA

COUNTY OF BEAVER

Subscribed and sworn to me, a Notary Public, in and for the County and State above named, this 8 th day of November 2000.

My Commission Expires:

Notarial Seal
Sheila M. Fattore, Notary Public
Shippingport Boro, Beaver County
My Commission Expires Sept. 30, 2002
Member, Pennsylvania Association of Notaries

ATTACHMENT A-1

Beaver Valley Power Station, Unit No. 1
License Amendment Request No. 276

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(Proposed wording)

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the coolant loops listed below shall be OPERABLE:

1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump, #

2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump, #

3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump, #

4. Residual Heat Removal Pump (A) and a heat exchanger,**

5. Residual Heat Removal Pump (B) and a second heat exchanger.**

b. At least one of the above coolant loops shall be in operation.***

APPLICABILITY: MODES 4 and 5.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

b. With no coolant loop in operation, suspend all operation involving a reduction in boron concentration of the Reactor Coolant system and immediately initiate corrective action to return the required coolant loop to operation. ~~Refer to Specification 3.4.1.6 for additional limitations.~~

** The normal or emergency power source may be inoperable in MODE 5.

*** All reactor coolant pumps and Residual Heat Removal pumps may be de-energized for up to 1 hour provided: 1) no operations are permitted that would cause dilution of the reactor coolant system boron concentration and 2) core outlet temperature is maintained at least 10°F below saturation temperature. For purposes of this specification, the addition of borated water to the RCS does not constitute dilution of the RCS boron concentration provided the boron concentration of the borated water being added is greater than the minimum required to satisfy the requirements of Specification 3.1.1.1 for Mode 4; or Specification 3.1.1.2 for Mode 5.

Insert A

(proposed wording)

DELETE

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 ft^3), 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 less than or equal to 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°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 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.

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* 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.

BASES

3/4.4.1.1, 2, 3 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 less than or equal 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.

(NON-ISOLATED)

The restrictions on starting a Reactor Coolant Pump with one or more RCS cold legs less than or equal to the enable temperature set forth in Specification 3.4.9.3 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 ~~either (1) restricting the water level in the pressurizer and thereby providing a volume for the primary coolant to expand into or (2) by~~ restricting starting of the RCPs to when the secondary water temperature of each steam generator (side) (NON-isolated) is less than 25°F above each of the RCS cold leg temperatures (in a NON-isolated loop). (Insert B)

(proposed wording)

INSERT A

No reactor coolant pump in a non-isolated loop shall be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature set forth in Specification 3.4.9.3, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 25°F above each of the non-isolated RCS cold leg temperatures.

INSERT B

The secondary side water temperature is to be verified by direct measurements of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping. This shall be determined within 10 minutes prior to starting a reactor coolant pump.

BASES (Continued)

3/4.4.9 PRESSURE/TEMPERATURE LIMITS (Continued)

HEAT INPUT TYPE TRANSIENTS (Continued)

c. Disallowing start of an RCP if the secondary side water temperature is ~~more than~~ greater than or equal to 25°F above primary temperature in any one of each steam generator in a non-isolated loop. LCO 3.4.1.6, "Reactor Coolant Pump Startup," 3.4.1.3 "Reactor Coolant System-Shutdown," provides this protection. the non-isolated RCS cold leg

The analyses demonstrate that either one RCS relief valve or the depressurized RCS and RCS vent can maintain the RCS pressure below the limits when only one charging pump is actuated by SI. Thus, the LCO allows only one charging pump OPERABLE during the OPPS MODES. Since neither one RCS relief valve nor the RCS vent can handle a full SI actuation, the LCO also requires the accumulators isolated.

The isolated accumulators must have their discharge valves closed with power removed. Fracture mechanics analyses established the temperature of OPPS Applicability at the enable temperature.

PORV PERFORMANCE

The fracture mechanics analyses show that the vessel is protected when the PORVs are set to open at or below the limit. The setpoint is derived by analyses that model the performance of the OPPS assuming the limiting OPPS transient of SI actuation of one charging pump. These analyses consider pressure overshoot and undershoot beyond the PORV opening and closing, resulting from signal processing and valve stroke times. The PORV setpoints at or below the derived limit ensures the P/T limits will be met.

The PORV setpoint will be updated when the revised P/T limits conflict with the OPPS analysis limits. The P/T limits are periodically modified as the reactor vessel material toughness decreases due to neutron embrittlement caused by neutron irradiation. Revised limits are determined using neutron fluence projections and the results of examinations of the reactor vessel material irradiation surveillance specimens. The Bases for LCO 3.4.9.1, "Pressure/Temperature Limits," discuss these examinations.

The PORVs are considered active components. Thus, the failure of one PORV is assumed to represent the worst case, single active failure.

RCS VENT PERFORMANCE

With the RCS depressurized, analyses show that a PORV or equivalent opening with a vent size of 2.07 square inches is capable of mitigating the allowed OPPS overpressure transient. The capacity of

ATTACHMENT A-2

Beaver Valley Power Station, Unit No. 2
License Amendment Request No. 157

The following is a list of the affected pages:

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(proposed wording)

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

3.4.1.2 a. At least two reactor coolant loops and associated steam generators and reactor coolant pumps shall be in operation* when the rod control system is capable of control bank rod withdrawal. #

b. At least two reactor coolant loops and associated steam generators and reactor coolant pumps shall be OPERABLE and one reactor coolant loop shall be in operation* when the rod control system is incapable of control bank rod withdrawal. #

APPLICABILITY: MODE 3**

ACTION:

a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.

b. With less than two reactor coolant loops in operation, immediately deenergize all control rod drive mechanisms, or align the rod control system so that it is incapable of control bank rod withdrawal.

c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 With the rod control system capable of rod withdrawal, at least two cooling loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.2.2 With the rod control system incapable of rod withdrawal, at least two cooling loops, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.3 With the rod control system incapable of rod withdrawal, at least one cooling loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

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*All reactor coolant pumps may be deenergized for up to 1 hour provided (1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration and (2) core outlet temperature is maintained at least 10°F below saturation temperature. This does not preclude natural circulation cooldown under abnormal cooldown conditions.

Insert C

**See Special Test Exception 3.10.4.

(Proposed wording)

Amendment No.

LIMITING CONDITION FOR OPERATION

3.4.1.3 a. At least two of the coolant loops listed below shall be OPERABLE.

1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump,

2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump,

3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump,

4. Residual Heat Removal Pump (A) and the (A) RHR heat exchanger,**

5. Residual Heat Removal Pump (B) and the (B) RHR heat exchanger.**

b. At least one of the above coolant loops shall be in operation.***

APPLICABILITY: MODES 4 and 5.

ACTION:

a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.

b. With no coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation. Refer to Specification 3.4.1.6 for additional limitations.

**The normal or emergency power source may be inoperable in MODE 5.

***All reactor coolant pumps and Residual Heat Removal pumps may be deenergized for up to 1 hour provided: 1) no operations are permitted that would cause dilution of the Reactor Coolant System boron concentration, and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

Insert C

(Proposed wording)

REACTOR COOLANT PUMP-STARTUP

(This Specification number is not used.)

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 ≤ 350°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.

(proposed wording)

BASES

3/4.4.1.1, 2, 3 REACTOR COOLANT LOOPS AND COOLANT CIRCULATION

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, this specification requires that the plant be in at least HOT STANDBY within 6 hours.

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 when the rod control system is capable of control bank rod withdrawal.

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.

(Non-isolated) (the enable temperature set forth in Specification 3.4.6.3)

The restrictions on starting a Reactor Coolant Pump with one or more RCS cold legs less than or equal to 350°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 RCPs to when the secondary water temperature of each steam generator is less than 50°F above each of the RCS cold leg temperatures.

(Non-isolated) (Insert D) (in a non-isolated loop) (side)

3/4.4.1.4 LOOP ISOLATION VALVES

BACKGROUND

The RCS may be operated with loops isolated in order to perform maintenance. While operating with a loop isolated, there is a potential for inadvertently opening the isolation valves in the isolated loop. In this event, the coolant in the isolated loop would suddenly begin to mix with the coolant in the operating loops.

(proposed wording)

INSERT C

No reactor coolant pump in a non-isolated loop shall be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature set forth in Specification 3.4.9.3, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 50°F above each of the non-isolated RCS cold leg temperatures.

INSERT D

The secondary side water temperature is to be verified by direct measurements of the fluid temperature, or contact temperature readings on the steam generator secondary, or blowdown piping after purging of stagnant water within the piping. This shall be determined within 10 minutes prior to starting a reactor coolant pump.

BASES

3/4.4.9 PRESSURE/TEMPERATURE LIMITS (Continued)

APPLICABLE SAFETY ANALYSES (Continued)

The actual temperature at which the pressure in the P/T limit curve falls below the OPPS setpoint increases as the reactor vessel material toughness decreases due to neutron embrittlement. Each time the heatup and cooldown curves are revised, the OPPS must be re-evaluated to ensure its functional requirements can still be met.

The heatup and cooldown curves represent the Appendix G limits that define OPPS operation. Any change to the RCS that may affect OPPS operation must be evaluated against the analyses to determine the impact of the change on the OPPS acceptance limits.

Transients that are capable of overpressurizing the RCS are categorized as either mass or heat input transients, examples of which follow:

MASS INPUT TYPE TRANSIENTS

a. Inadvertent safety injection; or

b. Charging/letdown flow mismatch.

HEAT INPUT TYPE TRANSIENTS

a. Inadvertent actuation of pressurizer heaters;

b. Loss of RHR cooling; or

c. Reactor coolant pump (RCP) startup with temperature asymmetry within the RCS or between the RCS and steam generators.

The following are required during the OPPS MODES to ensure that mass and heat input transients do not occur, which either of the OPPS overpressure protection means cannot handle:

a. Deactivating all but one charging pump OPERABLE; (of each steam generator in a non-isolated loop)

b. Deactivating the accumulator discharge isolation valves in their closed positions; and

c. Disallowing start of an RCP if (the) secondary (side water) temperature is (greater than or equal to) more than 50°F above primary temperature in any one (the non-isolated RCS cold leg) loop. LCO 3.4.1.6, "Reactor Coolant Pump Startup," (3.4.1.2, "Reactor Coolant System - Hot Standby," and LCO 3.4.1.3, "Reactor Coolant System - Shutdown,") provides this protection.

(proposed wording)

ATTACHMENT B

Beaver Valley Power Station, Unit Nos. 1 and 2
License Amendment Request Nos. 276 and 157
REVISION OF TECHNICAL SPECIFICATION 3/4.4.1.6,
REACTOR COOLANT PUMP STARTUP

A. DESCRIPTION OF AMENDMENT REQUEST

The proposed amendments will delete Technical Specification 3/4.4.1.6, Reactor Coolant Pump Startup, from the Beaver Valley Power Station (BVPS) Technical Specifications. This is accomplished by moving the secondary side water temperature to cold leg temperature difference Reactor Coolant Pump (RCP) start requirement to existing Reactor Coolant System (RCS) Technical Specifications and deleting the pressurizer level requirement from Unit 1 Technical Specification 3/4.4.1.6. Unit 2 Technical Specification 3/4.4.1.6 does not contain the pressurizer level requirement. The RCS Technical Specifications affected are Technical Specifications 3/4.4.1.2, Reactor Coolant System – Hot Standby (for Unit 2 only) and 3/4.4.1.3, Reactor Coolant System – Shutdown (both units).

The pressurizer level requirement from Unit 1 Technical Specification 3/4.4.1.6 will be deleted along with the associated Surveillance Requirement. The reference to Technical Specification 3/4.4.1.6 appearing in action "b" of Technical Specification 3/4.4.1.3 will be deleted. The temperature difference requirement will be moved to a new note in Technical Specifications 3/4.4.1.2 (Unit 2 only) and 3/4.4.1.3 (both units). The proposed Note, designated as "#", for Unit 1 is shown below. The Note being added is required for only Unit 2 because the Unit 1 Overpressure Protection System (OPPS) enabling temperature is not within the applicability of Technical Specification 3/4.4.1.2; i.e., Mode 3, whereas the OPPS enabling temperature is for Unit 2. The Unit 2 Note will be the same except that it will have a temperature difference limit of 50°F.

\# No reactor coolant pump in a non-isolated loop shall be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature set forth in Specification 3.4.9.3, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 25°F above each of the non-isolated RCS cold leg temperatures.

The Bases associated with these Technical Specifications and Technical Specification 3/4.4.9.3, Overpressure Protection Systems, will also be revised to reflect the proposed changes.

Deleting reference to the pressurizer level requirement for Unit 1 will modify the Bases associated with Technical Specifications 3/4.4.1.2 and 3/4.4.1.3. Text will be added to the Bases for both units to make it clear that the Technical Specifications apply to non-isolated Reactor Coolant System loops. The Unit 2 Bases will also be modified to replace the Unit 2 specific Overpressure Protection System enabling temperature with a reference to Specification 3.4.9.3. The footnote and the temperature determination time period contained in the Surveillance Requirement of Technical Specification 3/4.4.1.6 will be moved to the Bases for each unit.

The Bases associated with Technical Specification 3/4.4.9.3, Overpressure Protection Systems, will be modified to remove reference to Technical Specification 3/4.4.1.6 and to state that the temperature difference requirement applies to any non-isolated loop. The temperature difference requirement imposed on starting an RCP presently exists in these Technical Specification Bases and will be modified to be consistent with the Note, designated as "#", being added to Technical Specifications 3/4.4.1.2 and 3/4.4.1.3. The Bases will also be modified by replacing "more than" with "greater than or equal to" to more accurately reflect the secondary to primary side water temperature RCP start restriction.

The final portion of the proposed changes involves editorial changes needed to meet format requirements. The index for the Technical Specifications for each unit will be revised to reflect the deletion of Technical Specification 3/4.4.1.6. The Technical Specifications and Bases will be repaginated as necessary.

B. DESIGN BASES

During normal operation the Reactor Coolant System (RCS) is protected against overpressure by protective circuits such as the high pressure trip and by power operated relief valves and safety valves connected to the top of the pressurizer. These valves discharge into the pressurizer relief tank, which condenses and collects the valve effluent. However, at low system temperatures, the allowable RCS pressure is significantly less than the design pressure, necessitating additional means to alleviate concerns associated with brittle fracture of the reactor vessel. Therefore, overpressure mitigation provisions for the reactor vessel must be available when the RCS and the reactor vessel are at low temperatures. This is achieved through the use of an Overpressure Protection System (OPPS).

The purpose of the OPPS is to protect the RCS from overpressure at low temperatures by preventing an RCS pressure increase associated with a heat injection or mass input transient from exceeding 10 CFR 50 Appendix G, "Fracture Toughness Requirements," limits. The OPPS utilizes two of the three installed power operated relief valves (PORVs) to achieve this design requirement. The specific value of the temperature at which the OPPS is required to be operable is called the OPPS enable temperature and is specified in Technical Specification 3/4.4.9.3, Overpressure Protection Systems. This Technical Specification also addresses PORV operability during low RCS temperature conditions. Neither the number of PORVs required to be operable or the OPPS enable temperature requirement is changed by this license amendment request.

Potential overpressurization of the RCS can be caused by either of two types of RCS transients; i.e., mass or heat input. Both types result in more rapid pressure changes when the RCS is water solid. The design basis for OPPS, therefore, is to limit RCS overpressurization resulting from either mass or heat input transients to the RCS. Specifically, the OPPS design bases transients are defined as:

1) the mass input transient caused by a normal charging/letdown flow mismatch after the termination of letdown flow and the flow control valve failing in the full open position, and

2) the heat input transient caused by the start of an RCP when a temperature difference between the secondary side of the steam generators and the RCS cold legs exists.

The BVPS overpressure protection analysis assumptions are consistent with the generic methodology applied by Westinghouse. The major assumptions of this analysis applicable to the proposed changes are listed below.

1) Residual Heat Removal System is isolated from RCS.

2) Pressurizer is water solid.

3) Steam Generator to RCS temperature difference limitation is less than 25°F for BVPS Unit 1 (50°F for BVPS Unit 2).

4) To address single failure, only one of two PORVs is credited for accident mitigation.

The system is designed with redundant components to assure it will perform its function assuming any single active component failure. The system requires no operator action for the first ten minutes following the initiating event. Compliance with the OPPS analysis assumptions is retained in the Technical Specifications following the proposed changes. This is due to Technical Specification 3/4.4.9.3 specifying the OPPS enable temperature and PORV operability requirements, and Technical Specifications 3/4.4.1.2 (Unit 2 only) and 3/4.4.1.3 (both units) imposing the secondary to primary side temperature difference requirement associated with starting an RCP. Therefore, the deletion of Technical Specification 3/4.4.1.6 does not impact the design basis or safety analysis assumptions associated with the OPPS.

C. JUSTIFICATION

The purpose of this license amendment request is to correct a potentially non-conservative condition in Unit 1 Technical Specification 3/4.4.1.6, Reactor Coolant Pump Startup. The potential non-conservatism is due to RCP start restrictions of Unit 1 Technical Specification 3/4.4.1.6 applying only when both PORVs are not operable. Reactor Coolant Pump starting restrictions are applicable when the PORVs are operable and not operable. Consequentially, administrative controls have been implemented for Unit 1 as interim measures to address the potential non-conservatism of the Unit 1 Technical Specification. These administrative controls will be removed following the approval and implementation of the BVPS Unit 1 license amendment request.

In addition to correcting the non-conservative requirements discussed above, this license amendment request proposes other changes to the affected Technical Specifications to make them more consistent with Standard Technical Specifications. The Standard Technical Specifications are NUREG-0452, Standard Technical Specifications for Westinghouse Pressurized Water Reactors, and NUREG-1431, Standard Technical Specifications - Westinghouse Plants, Revision 1.

The additional proposed changes eliminate the pressurizer level requirement from the Unit 1 Technical Specification 3/4.4.1.6 and incorporate the secondary to primary side temperature difference requirement into existing RCS Technical Specifications for both units. The proposed changes are based on the Standard Technical Specifications mentioned above. Due to format and presentation of the BVPS Technical Specifications, the format of the proposed changes are modeled

after NUREG-0452. The location of the requirements is modeled after NUREG-1431, Revision 1. Therefore, the proposed changes will result in the BVPS Technical Specifications being more consistent in format and content with each of these Standard Technical Specifications. Technical Specification 3/4.4.1.6 is being deleted and the necessary requirements are moved to other RCS Technical Specifications. These actions are discussed in the following paragraphs.

Unit 1 Technical Specification 3/4.4.1.6 applies only if both OPPS PORVs are not operable. However, Technical Specification 3/4.4.9.3, Overpressure Protection System, contains the operability requirements and actions applicable to the PORVs when the OPPS is enabled; i.e., the RCS is at low temperature conditions. Restrictions imposed by Technical Specification 3/4.4.9.3 for inoperable PORVs allow continued plant operation only for a limited time before the RCS must be depressurized and vented if the PORVs are not returned to an operable status. It is through the application of Technical Specification 3/4.4.9.3 that the required number of operable PORVs is specified and enforced. Starting an RCP with both OPPS PORVs not operable is not consistent with the RCS venting actions required by Technical Specification 3/4.4.9.3. In order to comply with the venting required actions with neither PORV operable, the RCS must be depressurized or in the process of being depressurized. Depressurization of the RCS would preclude starting an RCP. In order to start an RCP, the RCS must be pressurized to ensure a minimum pressure differential exists across the No. 1 seal of the RCP. Therefore, the PORV related requirements of Unit 1 Technical Specification 3/4.4.1.6 are sufficiently addressed by Technical Specification 3/4.4.9.3. By eliminating PORV operability requirements from Unit 1 Technical Specification 3/4.4.1.6, the Technical Specifications become more consistent between the two units and with the Standard Technical Specifications. As a result, eliminating Unit 1 Technical Specification 3/4.4.1.6 does not affect the assumptions of the safety analysis for OPPS PORV operability and is acceptable.

One of the requirements of Unit 1 Technical Specification 3/4.4.1.6 is to have a pressurizer level less than 60 percent before an idle RCP can be started. This requirement is not contained in Unit 2 Technical Specification 3/4.4.1.6. A pressurizer level requirement of less than 60 percent is imposed to assure there is a bubble in the pressurizer to accommodate a heat input transient; i.e., starting an RCP, without lifting a PORV. However, the BVPS overpressure protection analysis assumes the pressurizer is water solid and credits only one of two PORVs to accommodate the potential pressure increase. One PORV is assumed operable

to address single failure. The overpressure analysis demonstrates that the temperature difference requirement is sufficient to limit the RCS pressure transient caused by starting an RCP, provided a PORV is operable. These analysis assumptions assure that 10 CFR 50 Appendix G limits are not exceeded when an idle RCP is started. Therefore, the pressurizer level limit is not required to ensure that the 10 CFR 50 Appendix G limits are not exceeded, provided a PORV is operable. Technical Specification 3/4.4.9.3 provides assurance that the PORVs are operable when required, or that appropriate remedial actions are taken. Therefore, the elimination of this requirement from the Unit 1 Technical Specifications is acceptable.

Technical Specification 3/4.4.1.6 for both BVPS units also contains a temperature difference requirement that must be met before an idle RCP can be started in a non-isolated loop. The temperature difference is between the secondary side water temperature and the non-isolated RCS cold leg temperatures. This requirement will be moved to a Note, designated by "#", that will be applied to Technical Specifications 3/4.4.1.2 (Unit 2 only) and 3/4.4.1.3 (both units). The Note being added is required for only Unit 2 because the Unit 1 OPPS enabling temperature is not within the applicability of Technical Specification 3/4.4.1.2; i.e., Mode 3, whereas the OPPS enabling temperature is for Unit 2. This note is modeled after the standard note appearing in the corresponding Technical Specifications of NUREG-1431, Revision 1. Incorporating the Note into the identified Technical Specifications will assure that the required temperature differential is met prior to starting an idle RCP in a non-isolated loop. The result is that moving the temperature requirement to existing RCS Technical Specifications preserves the assumptions of the safety analysis and conforms more closely with the presentation of this requirement in NUREG-1431, Revision 1, and is therefore acceptable.

Technical Specification 3/4.4.1.6 contains a Surveillance Requirement that requires determination of pressurizer level (Unit 1 only) and secondary side water temperature (both units). Deleting the determination of the pressurizer level requirement for Unit 1 is acceptable because the pressurizer level requirement is not required to support the OPPS analysis assumptions. This Surveillance Requirement does not exist in Unit 2 Technical Specification 3/4.4.1.6. The remaining portion of the Surveillance Requirement, the determination of the secondary to primary side temperature difference, is inherent in meeting the temperature difference RCP start restriction. Determining the temperature difference prior to starting an RCP is essentially performing the surveillance prior

to placing an RCS loop in service per Technical Specifications 3/4.4.1.2 and 3/4.4.1.3. Meeting the temperature difference requirement is a prerequisite to starting an RCP. Once the RCP is started, the temperature difference requirement is no longer necessary and RCP pump operability is determined by the pump's ability to provide the required flow. The existing surveillance requirements of Technical Specifications 3/4.4.1.1, 3/4.4.1.2 and 3/4.4.1.3 assure RCS loop operability for all required modes once the RCPs are started. Ensuring the temperature difference is met prior to starting an RCP is consistent with how this requirement is presented in the Standard Technical Specifications.

Technical Specification 3/4.4.1.6 for both units contains a footnote, designated by "#", describing how the secondary side water temperature is to be determined and when it should be determined. The footnote and the time period contained in the Surveillance Requirement are being moved to the Bases. The only change to the footnote being moved is an editorial one made to achieve consistency with the Note being added to Technical Specifications 3/4.4.1.2 and 3/4.4.1.3. This involves changing "secondary water" to "secondary side water." The time period contained in the Surveillance Requirement during which the secondary side temperature is to be determined will be retained in the Bases. Although it is prudent to determine the temperature as close as practical to the time the RCP is started, based on NUREG-1431, specifying such a requirement in the Technical Specification is unnecessary. A chosen time period should provide reasonable assurance that the temperature difference is known when the RCP is actually started. This time period does not relate to any accident analysis assumptions and does not appear in either NUREG-0452 or NUREG-1431. It is provided as guidance so that the secondary side water temperature does not have time to change significantly before the RCP is started. The specified time period also provides enough time to determine the temperature. The Bases provides adequate control over this type of requirement. Therefore, moving the footnote and the time period contained in the Surveillance Requirement to the Bases has no effect on the assumptions of the accident analysis and is acceptable.

The remaining changes are editorial, needed to conform with format requirements and to reflect the deletion of Technical Specification 3/4.4.1.6. The proposed changes are consistent with the content of NUREG-0452 and the intent of NUREG-1431, Revision 1. Furthermore, the elimination of Technical Specification 3/4.4.1.6, in its entirety from both units, makes the remaining BVPS

Technical Specifications more consistent between the two units and with the content of NUREG-0452 and NUREG-1431.

D. SAFETY ANALYSIS

The applicable safety analysis considers two accident scenarios that could possibly overpressurize the RCS. They are a mass input transient and a heat input transient. The mass input transient assumes the simultaneous closure of the letdown isolation valve, and the charging flow control valve failure to the full open position. The heat input transient assumes the steam generator secondary side is filled with warmer water than the primary loop and an idle RCP is started. With the secondary side water temperature above the primary side water temperature, the primary water is heated as it flows through the steam generator and expands, causing RCS pressure to increase. Both of these transients are assumed to occur with the RHR system isolated from the RCS and the pressurizer in a water solid condition. The proposed changes do not affect the mass input transient because this transient does not involve the starting of an RCP.

The concern associated with starting an idle RCP is a heat input transient that could possibly overpressurize the RCS. This transient can occur when an idle RCP is started in a non-isolated loop whose secondary side water temperature is higher than its primary side water temperature. However, adhering to a maximum secondary to primary side temperature difference and having an adequate pressure relief mechanism available will prevent overpressurization of the RCS.

Overpressurization protection of the RCS is provided by the Overpressure Protection System (OPPS). The OPPS analysis has shown that the heat input induced pressure increase can be accommodated by the OPPS with one operable PORV, provided the maximum secondary to primary side temperature difference is not exceeded. The Technical Specifications continue to specify the maximum secondary to primary side temperature difference and when the OPPS is required to be operable. These requirements are not altered by this license amendment request and will continue to assure that the OPPS analysis assumptions are met. Therefore, assurance is provided that the 10 CFR 50 Appendix G limits are not exceeded and that this proposed change is acceptable.

Following the proposed changes, Technical Specification 3/4.4.1.6 becomes an unnecessary Technical Specification for both units. This is due to the requirements addressed in this Technical Specification being deleted or moved to other

Technical Specifications or Bases following the incorporation of the proposed changes. Technical Specification 3/4.4.9.3 for both units currently addresses PORV operability when the OPPS is required. This Technical Specification addresses when one or more PORVs are inoperable and prescribes when the OPPS is to be enabled. Therefore, the reference to PORV operability in Unit 1 Technical Specification 3/4.4.1.6 is unnecessary. Adding the proposed Note to Technical Specifications 3/4.4.1.2 (Unit 2 only) and 3/4.4.1.3 (both Units) addresses the secondary to primary side temperature difference requirement presently contained in Technical Specification 3/4.4.1.6. The remaining requirement to be addressed in Unit 1 Technical Specification 3/4.4.1.6 is the pressurizer level requirement. This requirement is an unnecessary restriction imposed on starting an RCP because the OPPS analysis assumes a water solid pressurizer. Therefore, incorporating the proposed changes retains all the necessary restrictions on starting an RCP within the Technical Specifications for both units.

The proposed changes also result in BVPS Technical Specifications that are more consistent with the corresponding Standard Technical Specifications requirements. Based on the discussions above, operation of the facility in accordance with the proposed changes will not adversely affect the safety of the plant. Since adherence to the OPPS analysis assumptions is retained within the BVPS Technical Specifications, the proposed changes are safe.

E. NO SIGNIFICANT HAZARDS EVALUATION

For Beaver Valley Power Station (BVPS) the proposed changes will delete the pressurizer level requirement from Unit 1 Technical Specification 3/4.4.1.6, Reactor Coolant Pump Startup. Unit 2 Technical Specification 3/4.4.1.6 does not contain the pressurizer level requirement. The remaining Reactor Coolant Pump start restriction; i.e., a maximum secondary to primary side temperature difference, will be moved to Technical Specifications 3/4.4.1.2, Reactor Coolant System – Hot Standby (Unit 2 only), and 3/4.4.1.3, Reactor Coolant System - Shutdown (both units), and their associated Bases. These changes will result in the elimination of Technical Specification 3/4.4.1.6 for both units. By deleting the pressurizer level requirement and moving the temperature difference requirement to existing RCS Technical Specifications, all necessary requirements of Technical Specification 3/4.4.1.6 are retained within the BVPS Technical Specifications. As a result, Technical Specification 3/4.4.1.6 can be deleted without reducing the necessary operational restrictions needed to assure 10 CFR 50 Appendix G, "Fracture Toughness Requirements," limits are not exceeded.

The proposed changes will provide consistency between the Technical Specifications for the two BVPS units and make the resulting BVPS Technical Specifications more consistent with the Standard Technical Specifications. The Standard Technical Specifications are as documented in NUREG-0452, Standard Technical Specifications for Westinghouse Pressurized Water Reactors, the standard to which the BVPS Technical Specifications was written, and NUREG-1431, Standard Technical Specifications - Westinghouse Plants, Revision 1.

The proposed changes also involve editorial changes needed to meet format requirements. The index for the Technical Specifications for each unit will be revised to reflect the deletion of Technical Specification 3/4.4.1.6 and the applicable Bases will be augmented and repaginated as necessary.

The no significant hazards considerations involved with the proposed amendment have been evaluated. The evaluation focused 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 a testing facility involves no significant hazards considerations, 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?

   The proposed changes will not significantly increase the probability of an accident previously evaluated in the BVPS Updated Final Safety Analysis

Report (UFSAR) because accident initiation probabilities are independent of these changes. The proposed changes do not adversely affect any accident initiating events. The assumptions of the safety analysis are not changed by this license amendment request. The applicable concern associated is the possibility of overpressurizing the Reactor Coolant System (RCS) when a Reactor Coolant Pump (RCP) is started in a non-isolated loop. Adhering to a maximum secondary to primary side temperature difference (Technical Specifications 3/4.4.1.2, Reactor Coolant System – Hot Standby, Unit 2 only, and 3/4.4.1.3, Reactor Coolant System – Shutdown, both units), before an RCP is started and the operability of the OPPS (Technical Specification 3/4.4.9.3, Overpressure Protection Systems, for both units), which uses the PORVs as a pressure relief device, prevents this. The existing Technical Specifications specify when the OPPS is to be operable, the maximum secondary to primary side temperature difference permitted, and the operability requirements imposed on the PORVs.

The consequences associated with the starting of an RCP and potential overpressurization of the RCS also are not changed by the proposed license amendment. None of the accident prevention or mitigation controls or capabilities have been changed. Reactor Coolant Pump start restrictions are retained with the Technical Specifications, except for the pressurizer level requirement for BVPS Unit 1. This requirement has been shown to be unnecessary in preventing RCS overpressurization because the analysis assumes a water solid pressurizer when at least one PORV is operable. The safety analysis has shown that the temperature difference requirement is sufficient to preclude RCS overpressurization provided one PORV is available for pressure relief. As a result, the proposed changes will not affect any accident analysis consequences.

The Technical Specifications continue to specify the maximum secondary to primary side temperature difference, when the OPPS is to be enabled, and the operability requirements for the PORVs. These requirements are not altered by this license amendment request and will continue to assure that the OPPS analysis assumptions are met. It is sufficient to specify the temperature difference restriction for only Unit 2 Technical Specification 3/4.4.1.2 because the Unit 1 OPPS enabling temperature is not within the applicability of Technical Specification 3/4.4.1.2; i.e., Mode 3, whereas the OPPS enabling temperature is for Unit 2. Therefore, assurance is provided

that the 10 CFR 50 Appendix G limits are not exceeded and that this proposed change is acceptable.

The Bases and editorial changes, needed to meet format requirements and reflect the deletion of Technical Specification 3/4.4.1.6, have no effect on accident probabilities or consequences.

Therefore, the proposed changes do 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 do not modify the manner in which any plant equipment is maintained. The equipment used to prevent RCS overpressurization is not altered by the proposed changes. Specification of the number of PORVs required to be operable when the OPPS is enabled, and at what temperature the OPPS is required, will continue to be retained in Technical Specification 3/4.4.9.3, Overpressure Protection Systems. The necessary RCP start restrictions assumed in the safety analysis are not affected by the proposed changes. It has been shown that deleting the pressurizer level requirement for Unit 1 is consistent with the OPPS analysis. To assure the 10 CFR 50 Appendix G limits are not violated, the necessary requirements for starting an RCP in a non-isolated loop are retained within the Technical Specifications. Therefore, the analysis of an overpressurization of the RCS due to a heat input transient caused by starting an idle RCP is not changed by this license amendment request.

The Bases and editorial changes, needed to meet format requirements and reflect the deletion of Technical Specification 3/4.4.1.6, will not affect the creation of accidents. The OPPS analysis has demonstrated that an RCP can be started with a water solid RCS, provided the secondary to primary side temperature difference requirement is met, and a single PORV is available for pressure relief, without violating 10 CFR 50 Appendix G limits.

Therefore, the proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated for BVPS.

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

The margin of safety associated with starting an RCP in a non-isolated loop is the ability of a single OPPS PORV to relieve the potential RCS pressure increase without violating 10 CFR 50 Appendix G limits. This is maintained by meeting the secondary side water temperature to cold leg temperature difference and PORV operability requirements imposed by the Technical Specifications. These Technical Specification requirements are not altered by the proposed changes. The only deletion being proposed is the elimination of the pressurizer level requirement for BVPS Unit 1. This requirement has been shown to be unnecessary in meeting 10 CFR 50 Appendix G limits because the OPPS analysis assumes a water solid pressurizer and at least one OPPS PORV is operable. Starting an RCP with both OPPS PORVs not operable is not consistent with the RCS venting actions required by Technical Specification 3/4.4.9.3. In order to comply with the venting required actions with neither PORV operable, the RCS must be depressurized or in the process of being depressurized. Depressurization of the RCS would preclude starting an RCP. In order to start an RCP, the RCS must be pressurized to ensure a minimum pressure differential exists across the No. 1 seal of the RCP. Therefore, the PORV related requirements of Unit 1 Technical Specification 3/4.4.1.6 are sufficiently addressed by Technical Specification 3/4.4.9.3. By eliminating PORV operability requirements from Unit 1 Technical Specification 3/4.4.1.6, the Technical Specifications become more consistent between the two units and with the Standard Technical Specifications. All other RCP start and OPPS requirements are retained within the Technical Specifications and associated Bases sections.

The Bases and editorial changes, needed to meet format requirements and reflect the deletion of Technical Specification 3/4.4.1.6, will not affect the margin of safety.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety regarding meeting 10 CFR 50 Appendix G limits.

F. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

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

G. ENVIRONMENTAL CONSIDERATION

This license amendment request may change requirements imposed on components located within the restricted area as defined by 10 CFR Part 20. It has been determined that this license amendment request involves no significant increase in the amounts, and no significant change in the types of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. This license amendment request may change requirements imposed on components located within the restricted area; however, the category of this licensing action does not individually or cumulatively have a significant effect on the human environment. Accordingly, this license amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this license amendment request.