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FirstEnergy Nuclear Operating Company

Beaver Valley Power Station
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L-00-010

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

Subject: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
License Amendment Request No. 277

FirstEnergy Nuclear Operating Company (FENOC) requests a change to the Unit 1 Technical Specification (TS) Bases. The proposed change modifies the Bases for TS 3/4.4.9.3, "Overpressure Protection Systems" (OPPS) and 3/4.1.2 "Boration Systems" to allow the Reactor Coolant System (RCS) vent requirement associated with these TS to be met by venting to the pressurizer relief tank (PRT) as well as the containment atmosphere. This change will allow the required RCS vent to be established more quickly, which reduces personnel radiation exposure, expedites compliance with TS Actions and improves efficiency during outages.

The Unit 1 OPPS TS requires two PORVs with a lift setting less than or equal to 432 psig or the RCS depressurized and an RCS vent of greater than or equal to 2.07 square inches. The OPPS TS requirement provides RCS pressure control at low temperatures so the integrity of the reactor coolant pressure boundary is not compromised by exceeding the pressure and temperature limits of 10 CFR 50, Appendix G. The required RCS vent size (2.07 square inches) is based on the port diameter of a single PORV. The TS Bases applicable to the OPPS specifies that the required RCS vent be a "vent exposed to the containment atmosphere." The requirement for a 2.07 square inch RCS vent is also discussed in the Boration Systems Bases. In TS 3/4.1.2.1, "Flow Paths - Shutdown" and TS 3/4.1.2.3, "Charging Pump - Shutdown" the RCS vent is required when a low head safety injection (LHSI) pump is used in place of a charging pump to meet boration requirements when in Modes 5 and 6. Due to the low shutoff head of the LHSI pump, an RCS vent is required to ensure the boration flow requirements are met. The vent prevents the RCS pressure from exceeding the shutoff head of the LHSI pump. When describing the RCS vent, the current Boration System Bases only specify "...a minimum open RCS vent of 2.07 square inches."

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The proposed change to the Unit 1 TS Bases is presented in Attachment A. The change revises the OPPS and Boration Systems TS Bases description of the RCS vent to make them consistent and to allow the required RCS vent to be exposed to the PRT as well as the containment atmosphere. The proposed change will allow the RCS vent requirement to be achieved more quickly and with less radiation exposure than by physically removing a valve or opening a manway on the PRT to achieve a vent to the containment atmosphere. The Unit 2 PORVs are designed differently than the Unit 1 PORVs and can not be maintained open without a differential pressure; therefore, this change is requested for Unit 1 only.

Provisions to use an open valve for the OPPS RCS vent are included in the surveillances of TS 3.4.9.3. Surveillance 4.4.9.3.3 provides specific verification requirements for an open valve used as the OPPS RCS vent. TS 3/4.1.2.3, Charging Pump - Shutdown references Surveillance 4.4.9.3.3 for operability verification when a LHSI pump is used in place of a charging pump. Therefore, the use of an open valve to meet the OPPS and boration system vent requirement has already been considered and is accounted for in the current TS requirements. This bases revision is only intended to address the "vent path" description in the TS bases.

The proposed TS Bases change provides an alternate and equivalent vent path to meet the OPPS and Boration Systems requirement for an RCS vent. A calculation was performed to evaluate the effects of elevated PRT back-pressure on the operation of the OPPS and the Boration System flow requirements. The calculation concludes that the effects on the OPPS response to a design basis RCS overpressure transient and the capability of the LHSI pump to meet the Boration System flow requirements when the RCS is vented to the PRT instead of containment atmosphere are negligible. The calculation shows that the proposed change does not affect the ability of the RCS vent to perform its safety function to mitigate RCS pressure transients at low temperatures and to ensure sufficient borated water flow. Therefore, this change is acceptable and will not adversely affect the safety of the plant.

This change was reviewed by the Beaver Valley Power Station review committees and was determined to be acceptable. If there are any questions concerning this matter, please contact Mr. Mark S. Ackerman, Manager, Licensing at 412-393-5203.

Sincerely,

Lew W. Myers

c: Mr. D. S. Collins, 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, Marc P. Pearson, being duly sworn, state that I am Director, Plant Services of FirstEnergy Nuclear Operating Company (FENOC), that I am authorized to sign and file this Application 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

Marc P. Pearson
Director, Plant Services - FENOC

STATE OF PENNSYLVANIA

COUNTY OF BEAVER

Subscribed and sworn to me, a Notary Public, in and for the County and State above named, this 22th day of February, 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

Beaver Valley Power Station, Unit No. 1
License Amendment Request No. 277

[redacted]

The following is a list of the affected pages:

Affected Pages: B 3/4 1-2
B 3/4 4-10c

3/4.1.1.4 MODERATOR TEMPERATURE COEFFICIENT (MTC) (Continued)

fuel cycle. The surveillance requirement for measurement of the MTC at the beginning and near the end of each fuel cycle is adequate to confirm the MTC value since this coefficient changes slowly due principally to the reduction in RCS boron concentration associated with fuel burnup.

3/4.1.1.5 MINIMUM TEMPERATURE FOR CRITICALITY

This specification ensures that the reactor will not be made critical with the Reactor Coolant System average temperature less than 541°F. This limitation is required to ensure (1) the moderator temperature coefficient is within its analyzed temperature range, (2) the pressurizer is capable of being in an OPERABLE status with a steam bubble, (3) the reactor pressure vessel is above its minimum RT_{NDT} temperature, and (4) the protective instrumentation is within its normal operating range.

3/4.1.2 BORATION SYSTEMS

The boron injection system ensures that negative reactivity control is available during each mode of facility operation. The components required to perform this function include (1) borated water sources, (2) charging pumps, (3) separate flow paths, (4) boric acid transfer pumps, (5) associated heat tracing systems, and (6) an emergency power supply from OPERABLE diesel generators.

With the RCS average temperature above 200°F, a minimum of two separate and redundant boron injection systems are provided to ensure single functional capability in the event an assumed failure renders one of the systems inoperable. Allowable out-of-service periods ensure that minor component repair or corrective action may be completed without undue risk to overall facility safety from injection system failures during the repair period.

open to the Pressurizer Relief Tank (PRT) or containment atmosphere.

With the RCS average temperature less than 200°F, a low head safety injection pump may be used in lieu of the operable charging pump with a minimum ~~open~~ RCS vent of 2.07 square inches. This will provide latitude for maintenance and ISI examinations on the charging system for repair or corrective action and will ensure that boration and makeup are available when the charging pumps are out-of-service. ~~An open~~ vent ensures that the RCS pressure will not exceed the shutoff head of the low head safety injection pumps.

The requirement for an RCS

MOV-1SI-890C is the low head safety injection pump discharge isolation valve to the RCS coldlegs, the valve must be closed prior to reducing RCS pressure below the RWST head pressure to prevent draining into the RCS. Emergency backup power is not required since this valve is outside containment and can be manually operated if required, this will allow the associated diesel generator to be taken out of service for maintenance and testing.

(Proposed Wording)

BASES (Continued)

3/4.4.9 PRESSURE/TEMPERATURE LIMITS (Continued)

PORV REQUIREMENTS

As designed for the OPPS System, each PORV is signaled to open if the RCS pressure approaches a limit determined by the OPPS actuation circuit. The OPPS actuation circuit monitors RCS pressure and determines when a condition not acceptable is approached. If the indicated pressure meets or exceeds the OPPS actuation setpoint, a PORV is signaled to open. Having the setpoints of both valves within the limits ensures that the Appendix G limits will not be exceeded in any analyzed event. When a PORV is opened in an increasing pressure transient, the release of coolant will cause the pressure increase to slow and reverse. As the PORV releases coolant, the RCS pressure decreases until a reset pressure is reached and the valve is signaled to close. The pressure continues to decrease below the reset pressure as the valve closes.

RCS VENT REQUIREMENTS

pressurizer relief tank (PRT) or

Once the RCS is depressurized, a vent exposed to the containment atmosphere will maintain the RCS ~~at containment ambient~~ pressure in an RCS overpressure transient, if the relieving requirements of the transient do not exceed the capabilities of the vent. Thus, the vent path must be capable of relieving the flow resulting from the limiting OPPS mass or heat input transient, and maintaining pressure below the P/T limits. The required vent capacity may be provided by one or more vent paths.

PRT or

For an RCS vent to meet the flow capacity requirement, it may be satisfied by removing a pressurizer safety valve or establishing an opening between the RCS and the containment atmosphere of the required size through any positive means available which cannot be inadvertently defeated. The vent ~~path(s)~~ must be above the level of reactor coolant, so as not to drain the RCS when open.

APPLICABLE SAFETY ANALYSES

Safety analyses demonstrate that the reactor vessel is adequately protected against exceeding the P/T limits when low RCS temperature conditions exist. At the enable temperature and below, overpressure prevention is provided by two OPERABLE RCS relief valves or a depressurized RCS and a sufficient sized RCS vent.

(Proposed Wording)