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U.S. Nuclear Regulatory Commission
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Gentlemen: ULNRC- 04197

DOCKET NUMBER 50-483
CALLAWAY PLANT
UNION ELECTRIC COMPANY
PROPOSED REVISION TO TECHNICAL SPECIFICATIONS TO REVISE POWER RANGE NEUTRON FLUX HIGH SETPOINT VALUES

Reference: (1) Westinghouse Nuclear Safety Advisory Letter, NSAL-94-001, dated January 20, 1994
(2) Westinghouse Letter, SCP-99-129, dated July 7,1999

This letter transmits an application for amendment to Facility Operating License No. NPF-30 for Callaway Plant. This request proposes to revise the setpoint values for Power Range Neutron Flux High setpoint based on the number of inoperable Main Steam Safety Valves (MSSVs). Callaway Plant will be implementing Improved Technical Specifications (ITS) (Amendment 133 to NPF-30) in April 2000. Therefore all references in this request are to ITS unless specifically noted. In Reference 1,Westinghouse identified a generic concern that the current setpoint values provided in Technical Specification Table 3.7.1-1 are inadequate. In Reference 2, Westinghouse has since performed Callaway specific analyses to determine the values for the high neutron flux setpoints with inoperable MSSVs.

The Enclosure provides a description of the proposed license changes; a no significant hazards evaluation; and an environmental evaluation. Attachment 1 provides copies of the marked-up Improved Technical Specification pages. ITS page 3.7-1 also contains two identified format changes that have no impact on the content of the LCO. Attachment 2 provides clean copies of the proposed Improved Technical Specification pages.

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The proposed changes have been evaluated using criteria in 10CFR50.92(c), and it has been determined that the changes involve no significant hazards considerations. The bases for these determinations are described in the Enclosure.

An evaluation of the proposed changes based on 10CFR51.22(b) and 10CFR51.22(c)(9) has also been performed and it has been determined that the proposed changes do not significantly increase the types and amounts of effluents that may be released offsite nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, AmerenUE concludes that the proposed changes meet the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement.

After the receipt of Reference 1, Callaway Plant implemented administrative controls, based upon more conservative calculations, to ensure the use of adequate setpoint values. These controls have been in effect and will remain in effect until this license amendment request has been approved and implemented.

If you should have any questions on the above or attached, please contact Dave Shafer at (314) 554-3104 or Dwyla Walker at (314) 554-2126.

Very truly yours,

for Alan C. Passwater
Manager, Corporate Nuclear Services

DJW/jdg

Enclosures: 1) Affidavit
2) Description of Proposed License Change; Significant Hazards Evaluation; and Environmental Evaluation

Attachments: 1) Marked-up Current Technical Specifications
2) Marked-up Improved Technical Specifications
3) Proposed Improved Technical Specifications – Clean Copy

STATE OF MISSOURI)
) S S
CITY OF ST. LOUIS)

David Shafer, of lawful age, being first duly sworn upon oath says that he is Supervising Engineer, Corporate Nuclear Services, Regulatory Operations for Union Electric Company; that he has read the foregoing document and knows the content thereof; that he has executed the same for and on behalf of said company with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.

By David Shafer
David Shafer
Supervising Engineer,
Regulatory Operations,
Corporate Nuclear Services

SUBSCRIBED and sworn to before me this 7th day of March, 2000.

MELISSA L. ORR
Notary Public - Notary Seal
STATE OF MISSOURI
City of St. Louis
My Commission Expires: June 23, 2003

Melissa L. Orr

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ENCLOSURE

DESCRIPTION OF PROPOSED CHANGES; SIGNIFICANT HAZARDS EVALUATION; AND ENVIRONMENTAL EVALUATION

DESCRIPTION OF PROPOSED CHANGES

This request proposes to revise the setpoint values for Power Range Neutron Flux High setpoint based on the number of inoperable Main Steam Safety Valves (MSSVs). Technical Specification Table 3.7.1-1 provides the maximum allowable power range neutron flux high setpoint with a given number of inoperable Main Steamline Safety Valves (MSSVs). Current Technical Specification (CTS) Basis 3.7.1.1 provided an equation that was used to calculate the reduced power range neutron flux high setpoints with inoperable MSSVs. The equation was based on the assumption that the maximum allowable initial power is a linear function of the available MSSV relief capacity. However, as reported in Nuclear Safety Advisory Letter NSAL-94-001, Westinghouse identified a generic concern that makes the assumption not valid.

In lieu of the equation provided in the Current Technical Specification Bases, Westinghouse provided an algorithm that could be used to conservatively calculate the reduced power range neutron flux high setpoints with inoperable MSSVs. This algorithm (Reference 1) was used to determine the reduced reactor trip setpoints. The resulting setpoints were implemented under administrative controls and are more conservative than the Technical Specification setpoints.

Because using the algorithm yielded very restrictive results for Callaway Plant, Westinghouse was later requested by AmerenUE to perform plant-specific analyses to determine the setpoints. Westinghouse has since performed Callaway Plant specific analyses, using the LOFTRAN computer code, to determine revised values for the high neutron flux setpoints with inoperable MSSVs. Note, as discussed in the Callaway FSAR, Chapter 15, the LOFTRAN computer code is used in several non-LOCA transient analyses.

PROPOSED IMPROVED TECHNICAL SPECIFICATIONS MARKED-UP COPIES

See Attachment 1. Bases pages are provided for "information only".

PROPOSED IMPROVED TECHNICAL SPECIFICATIONS CLEAN COPIES

See Attachment 2

SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

In accordance with 10CFR50.92, AmerenUE has reviewed the proposed changes and has concluded that they do not involve a Significant Hazards Consideration (SHC). The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed changes do not involve a SHC because they would not:

1. **Involve a significant increase in the probability or consequences of an accident previously evaluated.**

The operability of the MSSVs ensures that the secondary side system pressure is limited to within 110% of its design pressure during the most severe anticipated system operational transient, which is the Loss of Load/Turbine Trip Event. As stated in FSAR 15.2.3.3, these events do not present a hazard to the integrity of the reactor core, the reactor coolant system, or the main steam system. The Power Range Neutron Flux High Reactor Trip function and the MSSVs are designed to mitigate the consequences of the Loss of Load/Turbine Trip event. The Loss of Load event is initiated as a result of an electrical system disturbance and the Turbine Trip event is initiated as a result of a signal derived from the turbine emergency trip fluid pressure transmitters and turbine stop valve limit switches.

The Power Range Neutron Flux High Reactor Trip function and the MSSVs ensure that the FSAR Loss of Load/Turbine Trip analyses are bounding for cases when not all of the MSSVs are operable. Technical Specification Table 3.7.1-1 controls the Power Range Neutron Flux High Setpoints when a MSSV is found to be inoperable. The controls under this proposed change, which are more restrictive than the ones in Technical Specification Table 3.7.1-1, do not install or modify any plant equipment. The revised Power Range Neutron Flux High Setpoints with inoperable MSSVs proposed under this change are bounded by the reactor trip setpoints currently provided in Table 3.7.1-1. In addition the functionality of plant equipment is unaffected by the proposed change.

Therefore, these changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Create the possibility of a new or different kind of accident from any previously evaluated.**

The proposed changes ensure that the FSAR Loss of Load/Turbine Trip analyses are bounding for cases when not all of the MSSVs are operable. Furthermore, the changes do not result in any previously incredible accidents becoming credible. No additional equipment is being credited in the mitigation of any Chapter 15 accident events, and the proposed changes do not invalidate any previous conclusions.

Thus, the changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Involve a significant reduction in the margin of safety.

Using the Power Range Neutron Flux High Setpoints with inoperable MSSVs provided by Westinghouse (Reference 2) in lieu of the ones calculated using the equation provided in the Current Technical Specifications Bases, results in more conservative reactor trip setpoints. This increases the margin of safety. The margin of safety as determined in the basis for the Technical Specification is not reduced.

Therefore, the changes do not involve a significant reduction in the margin of safety.

Based on the above discussions, it has been determined that the requested technical specification revisions do not involve a significant increase in the probability of consequences of an accident or other adverse conditions over previous evaluations; or create the possibility of a new or different kind of accident or condition over previous evaluations; or involve a significant reduction in a margin of safety.

The proposed changes ensure that the FSAR Loss of Load/Turbine Trip analyses are bounding for cases when not all of the MSSVs are operable. The revised Power Range Neutron Flux High Setpoints with inoperable MSSVs are more restrictive than the reactor trip setpoints currently provided in Technical Specification Table 3.7.1-1.

Therefore, the requested license amendment does not involve a significant hazards consideration.

ENVIRONMENTAL EVALUATION

AmerenUE has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed amendment does not involve: (1) A significant hazards consideration, as discussed above; (2) A significant change in the types or significant increase in the amounts of any effluents that may be released offsite; (3) A significant increase in individual of cumulative occupational radiation exposure. None of the proposed changes involves a change to the facility or operating procedures that would cause an increase in the amounts of effluents or create new types of effluents. The proposed changes are administrative in nature and do require changes to Trip Setpoints. These changes have no relation to occupational radiation exposure, either individual or cumulative.

Based on the foregoing, AmerenUE concludes that the proposed changes meet the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement. Pursuant to 10CFR51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

CONCLUSION

As discussed above, the proposed changes to the Current and Improved Technical Specifications do not involve a significant hazard consideration pursuant to 10CFR50.92. Additionally, AmerenUE has determined that this license amendment meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an environmental impact statement. The proposed changes will not endanger the health and safety of the general public.

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ATTACHMENT 1

MARKED-UP PROPOSED IMPROVED TECHNICAL SPECIFICATIONS

T/S 3.7.1, page 3.7-1
T/S Table 3.7.1-1, page 3.7-3
Bases 3.7.1, page B 3.7.1-2 (for "information only")
Bases 3.7.1, page B 3.7.1-4 (for "information only")
Bases 3.7.1, page B 3.7.1-6 (for "information only")

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 Five MSSVs per steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

NOTE
Separate Condition entry is allowed for each MSSV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more steam generators with one MSSV inoperable and the Moderator Temperature Coefficient (MTC) zero or negative at all power levels.	A.1 Reduce THERMAL POWER to ≤ 85% RTP.	4 hours
B. One or more steam generators with two or more MSSV's inoperable. OR One or more steam generators with one MSSV inoperable and the MTC positive at any power level.	B.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs. AND	4 hours

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Table 3.7.1-1 (page 1 of 1)
OPERABLE Main Steam Safety Valves versus
Maximum Allowable Power

NUMBER OF OPERABLE MSSVs PER STEAM GENERATOR	MAXIMUM ALLOWABLE POWER (% RTP)
4	≤ ~~87~~ 85
3	≤ ~~65~~ 49
2	≤ ~~44~~ 27

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BASES

APPLICABLE SAFETY ANALYSES (continued)

control, but crediting reactor trip on high pressurizer pressure and operation of the pressurizer safety valves. This analysis demonstrates that the maximum RCS pressure does not exceed 110% of the design pressure. All cases analyzed demonstrate that the MSSVs maintain main steam system integrity by limiting the maximum steam pressure to less than 110% of the steam generator design pressure. In some circumstances it is necessary to limit the primary side heat generation that can be achieved during an AOO by reducing the setpoint of the Power Range Neutron Flux-High reactor trip function. For example, if more than one MSSV on a single steam generator is inoperable, an uncontrolled RCCA bank withdrawal at power event occurring from a partial power level may result in an increase in reactor power that exceeds the combined steam flow capacity of the turbine and the remaining OPERABLE MSSVs. Thus, for multiple inoperable MSSVs on the same steam generator it is necessary to prevent this power increase by lowering the Power Range Neutron Flux-High setpoint to an appropriate value. When the Moderator Temperature Coefficient (MTC) is positive, the reactor power may increase above the initial value during an RCS heatup event (e.g., turbine trip). Thus, for any number of inoperable MSSVs it is necessary to reduce the trip setpoint if a positive MTC may exist at partial power conditions.

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MSSVs

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The MSSVs are assumed to have two active and one passive failure modes. The active failure modes are spurious opening, and failure to reclose once opened. The passive failure mode is failure to open upon demand.

The MSSVs satisfy Criterion 3 of 10 CFR 50.36 (c)(2)(ii).

LCO

The accident analysis requires that five MSSVs per steam generator be OPERABLE to provide overpressure protection for design basis transients occurring at 102% RTP. The LCO requires that five MSSVs per steam generator be OPERABLE in compliance with Reference 2 and the DBA analysis.

The OPERABILITY of the MSSVs is defined as the ability to open upon demand within the setpoint tolerances to relieve steam generator overpressure, and reseat when pressure has been reduced. The OPERABILITY of the MSSVs is determined by periodic surveillance testing in accordance with the Inservice Testing Program.

(continued)

BASES

ACTIONS (continued)

B.1 and B.2

In the case of multiple inoperable MSSVS on one or more steam generators, with a reactor power reduction alone there may be insufficient total steam flow capacity provided by the turbine and remaining OPERABLE MSSVs to preclude overpressurization in the event of an increased reactor power due to reactivity insertion, such as in the event of an uncontrolled RCCA bank withdrawal at power. Furthermore, for a single inoperable MSSV on one or more steam generators when the Moderator Temperature Coefficient is positive at any power level the reactor power may increase as a result of an RCS heatup event such that flow capacity of the remaining OPERABLE MSSVs is insufficient. The 4 hour Completion Time for required Action B.1 is consistent with A.1. An additional 32 hours is allowed in Required Action B.2 to reduce the setpoints. The completion time of 36 hours is based on a reasonable time to correct the MSSV inoperability, the time required to perform the power reduction, operating experience in resetting all channels of a protective function, and on the low probability of the occurrence of a transient that could result in steam generator overpressure during this period.

The maximum THERMAL POWER corresponding to the heat removal capacity of the remaining OPERABLE MSSVs is determined via a conservative heat balance calculation as described in the attachment to Reference 6, with an appropriate allowance for Nuclear Instrumentation System trip channel uncertainties.

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Required Action B.2 is modified by a Note, indicating that the Power Range Neutron Flux-High reactor trip setpoint reduction is only required in MODE 1. In MODES 2 and 3 the reactor protection system trips specified in LCO 3.3.1, "Reactor Trip System Instrumentation," provides sufficient protection.

The allowed Completion Times are reasonable based on operating experience to accomplish the Required Actions in an orderly manner without challenging unit systems.

C.1 and C.2

If THERMAL POWER or the Power Range Neutron Flux - High trip setpoints is not reduced within the associated Completion Time, or if one or more steam generators have less than two MSSVs OPERABLE, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unit must be placed in at least MODE 3 within

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BASES

REFERENCES (continued)

6. Westinghouse Nuclear Safety Advisory Letter NSAL 94-001, "Operational Reduced Power Levels with Inoperable MSSVs," dated 1/20/94. July 7, 1999.

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ATTACHMENT 2

PROPOSED IMPROVED TECHNICAL SPECIFICATIONS – CLEAN COPY

T/S 3.7.1, page 3.7-1
T/S Table 3.7.1-1, page 3.7-3

3.7 PLANT SYSTEMS

3.7.1 Main Steam Safety Valves (MSSVs)

LCO 3.7.1 Five MSSVs per steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each MSSV.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more steam generators with one MSSV inoperable and the Moderator Temperature Coefficient (MTC) zero or negative at all power levels.	A.1 Reduce THERMAL POWER to ≤ 85% RTP.	4 hours
B. One or more steam generators with two or more MSSV's inoperable. OR One or more steam generators with one MSSV inoperable and the MTC positive at any power level.	B.1 Reduce THERMAL POWER to less than or equal to the Maximum Allowable % RTP specified in Table 3.7.1-1 for the number of OPERABLE MSSVs. AND	4 hours (continued)

Table 3.7.1-1 (page 1 of 1)
OPERABLE Main Steam Safety Valves versus
Maximum Allowable Power

NUMBER OF OPERABLE MSSVs PER STEAM GENERATOR	MAXIMUM ALLOWABLE POWER (% RTP)
4	≤ 85
3	≤ 49
2	≤ 27