TENNESSEE VALLEY AUTHORITY
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SEP 19 1988

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Gentlemen:

In the Matter of	)	Docket Nos. 50-327
Tennessee Valley Authority	)	50-328

SEQUOYAH NUCLEAR PLANT (SQN) - REQUEST FOR TEMPORARY EXEMPTION FROM ADMINISTRATIVE PROVISIONS OF 10 CFR 50.46

By letter dated August 15, 1988, TVA submitted proposed technical specification change 88-20. Technical specification 88-20 proposed a revision to the upper head injection (UHI) system isolation setpoint and tolerances. As described in enclosure 2 of the August 15, 1988 letter, the lower bounding value for UHI water volume delivery was decreased from 900 cubic feet to 850 cubic feet in support of the setpoint change.

This change in delivered UHI water volume, while not presenting any safety concern, requires the performance of additional analyses to confirm that SQN is in compliance with applicable 10 CFR 50.46 criteria. The performance of the additional analyses presents significant schedule impacts for the restart of SQN unit 1. Therefore, TVA is requesting a temporary exemption from certain administrative requirements of 10 CFR 50.46(a)(1) until the analyses can be performed. The justification for this temporary exemption is provided as enclosure 1.

Enclosed is a check for the $150 fee required by 10 CFR 170.12 for review of this exemption request.

Summary statements of commitments contained in this submittal are provided in enclosure 2.

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w/check #150
#45550

U.S. Nuclear Regulatory Commission SEP 19 1988

Please direct questions concerning this issue to Russell R. Thompson at (615) 870-7470.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

M. J. Ray, Manager
Site Licensing Staff

Sworn to and subscribed before me
this 19th day of Sept, 1988

Susan C Baker
Notary Public
My Commission Expires 2/1/90

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ENCLOSURE 1

REQUEST FOR TEMPORARY EXEMPTION FROM
ADMINISTRATIVE PROVISIONS OF 10 CFR 50.46

JUSTIFICATION FOR EXEMPTION

In accordance with the provisions of 10 CFR 50.12, "Specific Exemption," TVA requests a temporary exemption from certain administrative provisions of 10 CFR 50.46(a)(1).

As described in enclosure 2 of proposed technical specification change 88-20 dated August 15, 1988, TVA intends to reduce the minimum UHI delivered water volume to 850 cubic feet. This change in delivered UHI water volume, while not presenting any safety concerns, requires the performance of additional analyses to confirm that SQN is in compliance with applicable 10 CFR 50.46 criteria. In particular, the 850-cubic-foot volume is less than the 900-cubic-foot volume assumed in the UHI Evaluation Model currently referenced in Final Safety Analysis Report (FSAR), section 15.4. The current FSAR analysis documents a peak clad temperature (PCT) of 2,113 degrees Fahrenheit (F) for the limiting break case.

As discussed in the August 15, 1988 letter, and as documented in the attached Westinghouse Electric Corporation (W) safety evaluation, the reduction in the minimum UHI water volume increases PCT by 53 degrees F. When PCT penalties are added for potential guide tube flexure failure and instrument guide tube filling during reflood, the limiting calculated PCT becomes 2,198 degrees F. The calculations used to determine this PCT value are based on sensitivities developed from the FSAR UHI Evaluation Model. This provides assurance that the calculated PCT value is bounding and ensures compliance with 10 CFR 50.46 criteria.

To provide additional assurance that PCT remains below the limits of 10 CFR 50.46, two operational restrictions will be imposed on SQN unit 1. First, the steam generator tube plugging limit will be administratively lowered from 10 percent to 5 percent. As described in the W safety evaluation, this effectively reduces calculated PCT by 22 degrees F. Second, the heat flux hot channel factor ($F_Q[z]$) limit will be lowered from 2.237 to 2.15. This reduces the calculated PCT an additional 87 degrees F for the limiting imperfect mixing case and 96 degrees F for the limiting perfect mixing case. This results in PCTs of 2,08º degrees F and 2,067 degrees F for imperfect and perfect mixing, respectively, for the postulated double-end, cold-leg guillotine (DECLG) break with a discharge coefficient (C_D) of 0.6. As can be seen, these operational restrictions provide over 100 degrees F of margin between the calculated PCTs and the regulatory limit. This margin is more than sufficient to offset any uncertainties in the sensitivity calculations utilized.

Subsequent to TVA Board approval, W will perform an analysis to confirm the effects of reducing the minimum delivered UHI water volume. After review and acceptance by TVA, this analysis will be submitted on or before May 31, 1989, for NRC review and approval. Accordingly, TVA requests a temporary exemption until NRC has accepted this analysis.

W is currently developing the cost and resource estimates for the performances of the confirmatory UHI Evaluation Model analysis. W has indicated that performance of the analysis will be delayed by a matter of weeks because the UHI Evaluation Model is not currently available for use. This is the result of W purchasing a new computer operating system since the last time the UHI Evaluation Model was needed. Before the analysis can be performed, the UHI Evaluation Model will have to be verified and validated on the new computer operating system.

TVA meets the applicable exemption criteria of 10 CFR 50.12(a)(1) as discussed below.

10 CFR 50.12(a)(1)

This temporary exemption does not present an undue risk to the public health and safety. As stated above, evaluations that have been performed by W demonstrate that adequate safety margins exist and that there are no safety concerns with full-power operation with the lower minimum delivered UHI water volume. In particular, while a UHI Evaluation Model analysis assuming a lower delivered UHI volume of 850 cubic feet has not been performed, W sensitivity studies based on the UHI Evaluation Model demonstrate compliance with the PCT criteria for full-power operation. Additionally, as discussed above, operational restrictions will be imposed to provide additional PCT margin, providing further assurance that the PCT criterion is satisfied.

Because there is no safety concern, this temporary exemption request does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of a new or different kind of accident from any accident previously evaluated, and does not involve a significant reduction in a margin of safety.

10 CFR 50.12(a)(1)(ii)

TVA believes that, for the particular circumstances presented, application of the regulation is not necessary to achieve the underlying purpose of the rule. As discussed above, evaluations that have been performed by W demonstrate that adequate safety margins exist and that there are no safety concerns with full-power operation with the lower minimum delivered UHI water volume. As documented in the attached W safety evaluation, the reduction in the minimum UHI water volume increases PCT by 53 degrees F. When PCT penalties are added for potential guide tube flexure failure and instrument guide tube filling during reflood, the limiting calculated PCT becomes 2,198 degrees F. The calculations used to determine this PCT value are based on sensitivities developed from the FSAR UHI Evaluation Model. This provides assurance that the calculated PCT value is bounding and ensures compliance with 10 CFR 50.46 criteria.

To provide additional assurance that PCT remains below the limits of 10 CFR 50.46, two operational restrictions will be imposed on SQN unit 1. First, the steam generator tube plugging limit will be administratively lowered from 10 percent to 5 percent. As described in the W safety evaluation, this effectively reduces calculated PCT by 22 degrees F. Second, the $F_Q(z)$ limit will be lowered from 2.237 to 2.15. This reduces the calculated PCT an additional 87 degrees F for the limiting imperfect mixing case and 96 degrees F for the limiting perfect mixing case. This results in PCTs of 2,089 degrees F and 2,067 degrees F for imperfect and perfect mixing, respectively, for the postulated DECLG break with a C_D of 0.6. As can be seen, these operational restrictions provide over 100 degrees F of margin between the calculated PCTs and the regulatory limit. This margin is more than sufficient to offset any uncertainties in the sensitivity calculations utilized.

Therefore, the evaluations presented meet the intent of the regulation requiring that emergency core cooling system (ECCS) performance be calculated by an acceptable evaluation model.

ENVIRONMENTAL ASSESSMENT

Identification of Proposed Action: The exemption will permit the utilization of evaluations based on sensitivity studies to demonstrate that calculated PCTs remain below the acceptance criteria of 10 CFR 50.46. Provisions of 10 CFR 50.46 require that ECCS performance be calculated with an acceptable evaluation model. An Appendix K evaluation using the UHI Evaluation Model will not be completed by W in support of the current unit 1 restart schedule. Therefore, a temporary exemption is needed from certain provisions of 10 CFR 50.46(a)(1) until the UHI Evaluation Model analysis can be completed.

The Need for the Proposed Action: The proposed temporary exemption is needed to permit plant operation without being in violation of 10 CFR 50.46 requirements.

Environmental Impact of the Proposed Action: The proposed temporary exemption is from certain administrative provisions of 10 CFR 50.46(a)(1). The intent of these provisions is to ensure that the PCTs during a postulated accident do not exceed 2,200 degrees F. As described above, W calculations have been performed that demonstrate that the limiting PCT resulting from the reduced minimum delivered UHI water volume is below the regulatory limit. Also, operating restrictions have been imposed to provide additional PCT margin of greater than 100 degrees F. This margin offsets any uncertainties of the sensitivity studies and ensures compliance with the 10 CFR 50.46(b) PCT criterion. Consequently, the radiological releases will not be greater than previously determined nor does the proposed exemption otherwise affect radiological plant effluents. Therefore, it is concluded that there are no significant radiological environmental impacts associated with this proposed exemption. With regard to potential nonradiological impacts, the proposed exemption does not affect nonradiological plant effluents and has no other environmental impact. Therefore, it is concluded that there are no significant nonradiological environmental impacts associated with the proposed exemption.

Alternative to the Proposed Action: The alternative to the proposed action would be to delay restart of SQN unit 1 until the UHI Evaluation Model analysis is completed. This would result in a significant loss of generation capability to TVA with no benefit to safety because, as stated above, the application of the regulation is not necessary to achieve the underlying purpose of the rule.

Alternate Use of Resources: This action does not involve the use of resources not previously considered in connection with the "Final Environmental Statement Related to the Operation of Sequoyah Nuclear Plant, Units 1 and 2," dated July 1974.

CONCLUSION

For the foregoing reasons, TVA believes that it has satisfied the requirements of 10 CFR 50.12 for a temporary exemption from certain administrative provisions of 10 CFR 50.46(a)(1) to allow full-power operation of SQN unit 1. TVA requests that this temporary exemption be granted as soon as possible.

ENCLOSURE 2

1. Subsequent to TVA Board approval, W will perform an analysis to confirm the effects of reducing the minimum delivered UHI water volume. After review and acceptance by TVA, this analysis will be submitted on or before May 31, 1989, for NRC review and approval.