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1-089-11

Director of Nuclear Reactor Regulation
ATTN: Mr. R. W. Reid, Chief
Operating Reactor Branch #4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Subject: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Reactor Building Spray System
(File: 1510)

Gentlemen:

In response to informal questions by the staff on the subject of chemical addition to the Reactor Building Spray System (RBSS), the following is provided.

Due to the gravity feed design of the NaOH injection system, a failure of one NaOH isolation valve to open would result in one spray train injecting BWST water without NaOH and the other injecting BWST water with a variable amount of NaOH added. The previous analyses indicated that with both RBSS trains operating, the NaOH would be added at 155 gpm to each train and the NaOH and BWST tanks would empty at approximately the same time. A bounding case can be assumed for the NaOH valve failure wherein the increase in NaOH flow through the single operating valve can be stepwise approximated by accounting for the increased pressure head in the NaOH tank. The pressure head differential between the NaOH tank and the BWST will increase because the NaOH tank will be emptying at a slower rate than with two trains operating. This bounding case results in a maximum NaOH flow of 182 gpm.

An evaluation of the pH effects of this bounding case using the assumptions of the previous analyses indicates that the maximum pH in the spray injection line would be 10.5 and the sump pH would be slightly less than 9.0. The maximum injection line pH of 10.5 is slightly higher than the maximum pH of 10.4 previously calculated for the loss of LPI case but still below a pH of 11 which is considered acceptable.

Very truly yours,

David C. Trimble

David C. Trimble
Manager, Licensing

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DCT:ERG:vb