



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

December 20, 2000

MEMORANDUM TO: Stuart A. Richards, Director
Project Directorate IV
Office of Nuclear Reactor Regulation

FROM: Ken E. Brockman, Director *EECollins for*
Division of Reactor Projects, Region IV

SUBJECT: TASK INTERFACE AGREEMENT (TIA) - REQUEST FOR
EVALUATION OF dc SYSTEM GROUNDS AT CNS (00TIA20)

Background - During a special inspection of the environmental qualification program at CNS, plant engineers questioned the environmental qualification of the safety relief valve tailpiece pressure switches. The engineers noted that installed switches did not have conduit seals, as shown in the qualification report, and were susceptible to grounding under a harsh environment. The engineers observed that these switches were located in the same electrical circuit as the control power for the safety relief valves. The grounding of these switches, during a design basis loss-of-coolant accident or other high energy line break, could have potentially caused the loss of the safety relief valve depressurization function by failing the common electrical supply.

After multiple reviews, plant engineers determined that the grounding of these switches and all nonqualified components on the vital dc circuit would potentially result in grounds of 1.3 amps during a postulated high energy line break inside the drywell. These switches, as well as indication and controls for the SRVs, are in 10-amp fused circuits powered from the 125 Vdc, Division 1 bus. It was postulated by licensee engineers that, when combined with the expected loop currents of approximately 8 amps, the total ground currents resulting from the nonconforming SRV pressure switches could produce an overall 9.3 amps in the 10-amp circuit.

The inspectors determined that plant engineers had not applied uncertainties (tolerance) for the resistive values used in their current analysis. The inspectors applied appropriate uncertainties to the licensee's calculations. Based on this, the inspectors concluded that, in a harsh environment, with the nonconforming environmental qualification treatments, the 10-amp fuses could open. This would result in the loss of SRV capability.

The licensee's evaluation and the inspectors' conclusions are more thoroughly discussed in NRC Inspection Report 50-298/00-07. While attempting to resolve outstanding questions, our inspectors contacted one of your experts in this area, Mr. Stephen D. Alexander. Mr. Alexander suggested sending the issue to your office via a Task Interface Agreement so that knowledgeable experts had the opportunity to review the circuit analysis directly.

Request - We request assistance in determining the following:

- Does the licensee have reasonable assurance that the 125-volt dc circuits in the drywell would have remained operable during a high energy line break, or would the 10-amp circuit fuses have likely opened resulting in a common cause failure of both trains?

If you have any questions please contact Mr. David P. Loveless of my staff at (817) 860-8161. We request a response by February 1, 2001.

This Task Interface Agreement was discussed with Mr. Mohan Thadani, the Project Manager for Cooper Nuclear Station.

Attachments:

1. Excerpts from NRC Inspection Report 50-298/00-07
2. CNS Electrical Drawing 791E253 Sheet 1, "Cooper Nuclear Station Automatic Blowdown System Elementary Diagram"
3. CNS Electrical Drawing 794E253 Sheet 3, "Cooper Nuclear Station Automatic Blowdown System Elementary Diagram"
4. Low Level Setpoint, Figure 6, Revision 11
5. White Paper for SRV past operability
6. CNS Licensee Event Report 50-298/00-008-01

cc via E-mail through ADAMS:

K. Brockman, D:DRP (**KEB**)

DRP Directors: RI, RII, RIII (**ARB, LRP, GEG**)

F. Miraglia, Deputy Executive Director for Reactors (**FJM**)

S. Black, Deputy Director, DLPM (**SCB**)

L. Marsh, Chief, Events Assessment, Generic Comm., and Non-Power Reactors (**LBM**)

R. Borchardt, Director, OE (**RWB1**)

M. Thadani, NRR Project Manager (**MCT**)

appropriate technical organizations in HQ
cognizant technical personnel in Region IV

C. Marschall, C:DRP/C (**CSM**)

D. Loveless, DRP/C (**DPL**)

W. Sifre, DRP/C (**WCS**)

L. Owen, DRP Division Secretary (**LAO**)

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