



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

REGION II  
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December 7, 2000

MEMORANDUM TO: Luis A. Reyes,  
Regional Administrator, Region II

FROM: Larry W. Garner, *LWG*  
Senior Project Engineer, Region II

SUBJECT: DIFFERING PROFESSIONAL VIEW - ISSUANCE OF V. C.  
SUMMER INTEGRATED INSPECTION REPORT WITH A  
PRELIMINARILY DETERMINED YELLOW FINDING

DISCUSSION:

Integrated Inspection Report 50-395/00-05, issued October 10, 2000, neither adequately justifies a preliminary yellow finding nor provides sufficient documentation or plausible explanations for the shaping factors used in determining recovery. In addition, the Significance Determination Evaluation Review Panel (SERP) failed to perform an adequate independent review of the recovery action determination.

On September 21, 2000, V. C. Summer determined that the turbine driven emergency feedwater (TDEFW) train had been inoperable for approximately 48 days. The event involved the TDEFW pump manual discharge valve being locked closed instead of open. The unit was at or near full power during this time. A Region II senior reactor analyst (SRA) discussed this event with the licensee's risk analysts. The NRC's and the licensee's risk models produced similar core damage frequencies if no operator action was taken to recover the TDEFW train. However, there was differences in modeling recovery actions. The SRA concluded that operators would be successful 50 out of 100 attempts to recover the system. With this input into the Significance Determination Process, the issue was assigned a color of yellow. The licensee determined that successful recovery would occur 75 out of 100 attempts and assigned a color of white.

For reference, the report paragraphs being discussed are:

Procedures: The only guidance in Emergency Operating Procedure (EOP)-6.0, "Loss of All EFS AC Power," regarding EFW flow is to check the TDEFW pump and the discharge flow control valves. The EOP does not direct walking down the discharge lines for flow obstruction, therefore, this action would fall under "skill of the craft." It should also be noted that EOP-6.0 is a continuous use procedure which means that the operators are not to go outside the EOP until AC power is restored. A procedural performance shaping factor (PSF) of poor was selected.

Ergonomics: The diagnostic would have to be done outside the control room with an SBO in progress. Flashlights would be required for lighting in the area of the discharge valve due (to) the emergency lighting being located on the opposite side of the mezzanine level. The discharge isolation valve is not located adjacent to the TDEFW

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pump but in an overhead mezzanine. The valve is properly labeled, however, the valve is in a congested area with other valves and components in a somewhat remote corner on the mezzanine level. The valve was locked with a colored chain reserved for locked open valves which would give some confidence to the operators that the valve was in the correct position. In addition, there is industry experience that the valve cages of the downstream flow control valves can plug prohibiting EFW flow to the steam generators. A PSF between nominal and poor was selected for this area.

Under procedures, reference is made to not having specific instructions to look for an obstruction (this a skill of the craft) and that the operator could not go outside the procedure until AC power was restored. To say that this makes the procedure poor is inappropriate. The procedure directs the operators to the area of concern, i.e., no flow from the pump to the steam generators. The detail in the procedure is consistent with EOP guidelines and has been accepted by the NRC. The NRC has accepted that a licensee stays in this procedure until AC power is restored since without AC power, none of the other EOPs, etc., can be accomplished. This procedure has two basic items to perform, restore AC power and maintain cooling to the reactor core. Operators are normally trained on the importance of these items under the postulated blackout events. It is not difficult with the available indications in the control room and/or in the pump room to determine that a flow blockage exists, i.e., not a complex task. Also, the TDEFW subsystem contains only a few components in the flow path, thus finding a flow blockage is not a complex task. Therefore, there is no need for specific procedural steps to discover and correct a closed manual isolation valve. Thus, the procedure should have been considered as either nominal or between nominal and poor.

Furthermore, by insisting that skill of the craft activities, which are relatively non-complex, must be incorporated in an EOP before the EOP is considered nominal, could be detrimental to safety. It encourages licensees to clutter up their EOPs with unnecessary detail.

Under ergonomics, the statements concerning the lighting and location are accurate. Although it is conceivable that an operator would not find the valve because of the lightning or he would be deterred because he might have to climb over or under a few pipes or supports, and that once he finds it, he might not try to open it because there is a red chain around the valve, seems extremely unlikely. The mezzanine is not all that large, perhaps two to three thousand square feet, a mid-size house. Even if the valve is in the shadow of a ventilation duct, it is not feasible that in a loss of AC power event, the operator would not have a flashlight with him and not use it. As to some confidence that the colored chain would convince the operator that the valve was open, the reason he would be looking at the valve was in anticipation that the valve was closed, i.e., he would be predisposed to finding it closed. Furthermore, in the report we state, "Based on discussions with the operators, the inspectors determined that both operators failed to recognize that the manually operated valve was a rising stem valve and visual position indication was easily recognizable (emphasis added)." Also, the comment about plugged flow control valves was inappropriate, in that, the site has never experienced this kind of problem with these valve. Thus, this PSF should have been nominal, not poor.

Based upon the above, the preliminary finding should have been colored as white.

During the SERP, the SRA restated the report contents with few amplifying remarks. The only significant question asked was if personnel in NRR had reviewed his determination. He indicated that they had. When I asked my branch chief if we should walk through the EOP so that everyone could be on the same page, he indicated that was not necessary. However, since the assignment of PSFs are quite subjective, additional discussions should have occurred.

**RECOMMENDATIONS:**

1. The SERP should at least understand in detail the basis of, and perhaps concur in, subjective areas such as the selection of PSFs for recovery actions, and
2. Inspection reports should contain sufficient details on subjective areas to withstand reasonable scrutiny.