

~~IP-26a~~  
Addendum 2  
file IAG

TASK CLOSE OUT DOCUMENT

Task Scope Implement cautions described  
in IA-26a while transition  
to natural circulation was proceeding

To: M. Levenson  
S. Levy  
E. Zebroski

Task No. IA-26a addendum 2 Date Complete 4/28/79

Reason felt task is complete:

Natural circulation established 4/27/79  
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Members of Committee

R D Kelly  
J Hench  
D Tooker  
D Cain  
E Stroupe  
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R Dennis Kelly  
Signed  
Committee Leader

NATURAL CIRCULATION ATTEMPT - 4/27/79

Notes on the IAG natural circulation task team efforts during the attempt.

Our proposed modification to EP-32 had not been implemented. Moreover, EP-21, the procedure for level control without level indication was not a constant mass control procedure.

Our mod to EP-32 had been to implement EP-21 for constant mass control, and to abort after 3 hours if no natural circulation had been established. Moreover, notes concerning pressuriser level response as an indicator of natural circulation processes had been included. Since the attempt was brought on by the impending loss of the final level indicator, EP-21 was in effect during the attempt, and pressuriser level indications of natural circulation success were obviated.

E. Stroupe was in the control room and pointed out that EP-21 was not a constant mass procedure, but rather that for each ten degree rise in  $T_{avg}$ , the makeup tank water level will be increased by 16" via increased letdown. This is equivalent to removing 20" of water from the pressuriser. Stroupe conferred with the Natural Circulation task team and they were content with increasing the pressuriser level from 250" to 350" prior to an abort which would restart the pump.

Presumably, such an increase would be accomplished by pumping 80" of water from the makeup tank back into the primary system. Thus, if  $T_{avg}$  had increased by less than 50°F by abort time, the system mass at abort time would be at least equivalent to the initial mass, and the shrink expected following return to forced flow cooling would be expected to leave a pressuriser level of 250" +50" depending on the amount of secondary side cooldown established by abort time. Accordingly, we informed Stroupe that the procedure seemed acceptable and that no unrecoverable mass depletion would occur unless  $T_{avg}$  rise exceeded 50°F. In fact, since the pressuriser heaters remain covered comfortably at a level of 100", the 250 +50" left approximately 100" margin to safety, and we resolved that the danger of uncovering the heaters following an abort would not be approached unless  $\Delta T_{avg}$  exceeded 70 to 80°F.

I should point out here that if  $T_{avg}$  remained constant (regardless of the physical meaning of the  $T_{avg}$  parameter), the system mass would remain constant.

During the initiation transient, we carefully watched the progress of the loop thermocouples since they were likely used in some fashion to compute  $T_{avg}$ . The transient demonstrated a monotonically decreasing  $T_{avg}$ , so EP-21 guaranteed a monotonically increasing system mass, and our fears of excessive level drop during an abort were inoperative.