



Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

May 23, 1985

Mr. Harold R. Denton
U.S. Nuclear Regulatory Commission
Ofc. of Nuclear Regulatory Commission
Washington, DC. 20555

Subject: Dresden Station Units 2 and 3
Quad Cities Station Units 1 and 2
Drywell Temperature Profiles
NRC Docket Nos. 50-237/249 & 50-254/265

References (a): D. B. Vassallo letter to D. L. Farrar
dated April 11, 1985

(b): B. Rybak letter to H. R. Denton dated
November 5, 1984

Dear Mr. Denton:

Reference (a) requested additional information to support use of drywell temperature profile curves assuming 30 minute drywell spray initiation even through Commonwealth Edison has steadfastly stated that curves using a 10 minute initiation time is completely appropriate and acceptable.

In the following paragraphs Commonwealth Edison will explain why it should not be objectionable to use a 10 minute interval.

As far as diverting water from core coverage the following holds:

- a. Suppression pool temperature must be below pool temperature vs. pressure curve in the EOPs.
- b. Operator has to use keylock switch to initiate DW spray and he can't divert unless he has adequate core cooling.
- c. Suppression pool pressure exceeds 12.8 psig.

Analysis indicates that peak drywell temperatures occur during postulated small break accidents (SBA) in the steam line. The two major accident scenarios assuming a single failure with loss of offsite power are:

- a. High pressure coolant injection (HPCI) failure or
- b. A diesel generator failure

8506050445 850523
PDR ADOCK 05000237
P PDR

A cool 1/0

For either case, the RHR (LPCI/CCSW) pumps are immediately available for drywell spray operation.

In case a), the operator would depressurize the reactor to allow the low pressure pumps to supply makeup flow. In the Dresden and Quad Cities plants there are two independent core spray (CS) and two LPCI subsystems available. (Two pumps are fed from two different ESF divisions and only 3 of 4 LPCI pumps need to be operable. The two CS trains are adequate to cool the reactor core and the operator, therefore, can divert water from LPCI to drywell spray.

In case b), the HPCI system supplies make up to the reactor. Two RHR (LPCI) pumps would still be functional on the operable diesel generator and could be diverted to drywell spray.

Therefore, given a SBA, the reactor core would remain adequately cooled so the operator could transfer one RHR (LPCI) loop, two pumps, to drywell spray operation at his discretion.

Large break design basis accidents (DBA) do not challenge the drywell temperature limits. Most of thermal energy is quickly transferred to the suppression pool following the accident. In addition, makeup flow will cascade from the break into the drywell and act to quench the steam.

Given a postulated accident it is reasonable to expect the operator to act to initiate DW spray within 10 minutes. The actions required are simple, and the operator is trained to perform and expect this function.

To initiate drywell sprays, the operator has only to realign two valves. This procedure would not take more than a couple of minutes.

The need for drywell sprays is specified in the Emergency Operating Procedures (EOP) which all operators will follow effective 10/30/85. These symptom based guidelines are straightforward and tell the operator to initiate drywell sprays when the containment symptoms of high temperature or pressure appear and does not provide any time restraints on that action. Operating experience has shown that the operators act quickly during transients to bring a plant to a safe shutdown.

A 10 minute operator action time after the start of an accident is an accepted standard in nuclear plant analyses. Automatic depressurization system (ADS) actuation at 10 minutes has been assumed for SBA analyses in the Mark I containment program in NUREG-0661 and for LOCA analyses for breaks outside of the containment. RHR pool cooling in 10 minutes has been assumed in the Mark I and II FSAR containment calculations and has been accepted by the NRC in NUREG 0783 pool temperature studies.

May 23, 1985

In conclusion, the assumption of drywell spray operation within 10 minutes is justified for licensing analyses in BWR plants. During a postulated LOCA, the LPCI function of the RHR (LPCI/CCSW) is not needed when the drywell sprays are needed. The switchover from LPCI to drywell spray is a simple action which the operator is well trained to perform. The 10 minute operator action is a conservative assumption and has been accepted standard in the nuclear industry.

Nevertheless the Staff feels that operation within 10 minutes is not acceptable, however, that credit can be given for initiation some 30 minutes after any transient. Given that we feel that operation of the sprays is possible within 10 minutes as stated above clearly these actions can be accomplished within 30 minutes without need for additional review.

Should Commonwealth Edison Company have to take credit for 30 minutes instead of 10, we will have to replace the BISCO LOCA seals currently installed at Quad Cities Unit 1 and Dresden Unit 2. These seals would have to be replaced on a Target Rock-AVCO relief valve solenoid and on one NAMCO limit switch.

If you have any further questions, please contact his department. One signed original and forty (40) copies of this letter is provided for your use.

Very truly yours,



B. Rybak
Nuclear Licensing Administrator

cc: NRC Resident Inspector-Dresden
NRC Resident Inspector-Quad Cities
R. Bevan-NRR
R. Gilbert-NRR

0164K