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BECo 85-183

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Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

License DPR-35
Docket 50-293

Additional Responses to Questions Concerning
Boston Edison's Reply to Generic Letter No. 84-09

Dear Sir:

On May 21, 1985, Boston Edison responded to questions generated in conference calls of March 19 and 26, 1985, concerning the criteria provided in Generic Letter No. 84-09 of May 8, 1984. The response was provided to mitigate the need to install hydrogen recombiners or recombiner capability required under 10CFR50.44(c)(3).

Additional information was requested in conference calls of June 18, July 25, and August 7, 1985. This letter responds to the information requested and provides additional data on prior commitments.

On May 21, 1985, we committed to add both the nitrogen pressure gauge (PI-5011) and the instrument air gauge (PI-4339) to the daily operator surveillance tour. This would provide additional operational awareness of the instrument nitrogen status. The operator will know that as long as the nitrogen pressure is higher than the instrument air pressure, the system is operating on nitrogen. If the nitrogen system pressure is equal to or lower than the instrument air pressure, the nitrogen system will be checked for leakage and returned to proper operation. This surveillance activity was added to the PNPS "Nuclear Power Plant Operator Tour" procedure on July 1, 1985. (PNPS Procedure No. 2.1.16)

In the same May 21st letter, we committed to tie-wrap the service air connecting valve to the nitrogen purge line. This valve is located on the north wall of the Reactor Building at elevation 23'. This valve was tie-wrapped and added to the PNPS "Lock Open, Lock Close, Valve Lineup Surveillance" procedure on June 26, 1985. (PNPS Procedure No. 8.C.13)

Additionally, we committed to update the FSAR and Pilgrim Station Procedure No. 5.4.6. These documents discuss the use of nitrogen and service air for control of combustible gases in containment. The FSAR was modified in our July, 1985 submittal to specify nitrogen as the primary makeup source. Procedure No. 5.4.6 and related procedures will be revised by December 31, 1985.

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The responses to the questions posed in the conference telephone calls of June 18th, July 25th and August 7th are provided as follows:

1. In prior correspondence which responded to NUREG's 0578 and 0737, the Instrument Air/Nitrogen system at Pilgrim Station was identified as a non-essential system because it was determined that the system was not needed for mitigation of an accident or abnormal transient. Isolation of this system is achieved by a check valve and air operated gate valve actuated by a remote manual switch in the Control Room (BECo Ltrs. 79-79 of 4/25/79 and 80-54 of 4/4/80). The NRC concurred with our identification of the Instrument Air/Nitrogen Supply system as a non-essential system, and concluded that our review of containment isolation design and procedures satisfied the intent of IE Bulletin 79-08 of 4/14/79. (NRC Staff Evaluation of BECo Responses to IE Bulletin 79-08 for Pilgrim Station, 12/18/79).

2. The Hays Analyzer has been reset to alarm on 3% O_2 in containment rather than 4%, and the backup Comsip has been set to alarm at 4% O_2. These settings will be included in Pilgrim Station procedures, which will also provide direction for operators in the event of an alarm, and to minimize the length of time on instrument air during normal operations. This commitment will be completed by December 31, 1985.

3. In the event of a double-ended guillotine break to a 3" instrument air/nitrogen line in the drywell (a scenario postulated by NRC Reviewers), the following chain of events would be expected to occur:

   a. The volume demand resulting from the break would initiate a N_2 pressure drop because the N_2 and instrument air feeds are 2" piping feeding into the 3" line. The pressure drop would result in an O_2/N_2 mixture flowing into the fractured 3" line inside the drywell.

   b. This would result in an Instrument Air System low pressure alarm.

   c. Pressure would build up in the drywell, and operators would see an increase in the drywell to Torus Δ P.

   d. Operators would see increasing O_2 levels.

   e. The increased use of N_2 would lower the cryogenic tank pressure and the Flow Totalizer would show an increase.

   f. The plant process computer has alarm functions for drywell to Torus differential pressure, and drywell pressure. This system would provide early alert of possible problems.

   g. If drywell pressure reaches $\leq$ 2.5 psig, the plant will automatically scram.

   h. The Hays Analyzer will alarm at 3% O_2.

In this scenario, the poss'bility exists that the plant will scram before the Hays Analyzer initiates an alarm at 3% O_2, and operator action would not be necessary.

4. An off-normal procedure will be initiated to provide operator isolation of containment when the O_2 level reaches 4% (The Hays Analyzer alarms at 3% and the backup Comsip alarms at 4% O_2). This will provide for a LOCA event during normal operation. This commitment will be completed by December 31, 1985.

5. Our previous calculation of the time lapse from alarm at 3% O_2 to 4% O_2, after a double-ended guillotine break of the 3" instrument air/nitrogen line in containment, included both the drywell and the Torus. It was calculated at maximum system pressure (125 psig). A recalculation of the same scenario at operating pressure, with the Torus volume excluded, lessens the time lapse. Since procedures will be incorporated to add N_2 and provide venting through SGTS when the O_2 level reaches 2%, and since manual isolation will occur at 4% (Par. No. 4), and further, since the logic of the event dictates that a scram will occur before the containment O_2 level initiates an alarm at 4%, this calculation is inconsequential. The procedure commitment will be completed by December 31, 1985.

This additional information and our commitments are provided to support your approval of our actions for resolving the requirements of 10CFR 50.44(c)(3), which were enumerated in Generic Letter No. 84-09 of May 8, 1984.

Very truly yours,

W D Harrington

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REFERENCE:

1. Generic Letter 84-09, "Recombiner Capability Requirements of 10CFR50.44 (c)(3)(ii)," May 1984.

2. BECo Letter 84-092, "Response to Generic Letter 84-09," June 27, 1984.

3. BECo Letter 84-204, "Pilgrim Station Conformance to Generic Letter 84-09," December 6, 1984.

4. NEDO-22155, "Generation and Mitigation of Combustible Gas Mixtures in Inerted BWR Mark I Containments," June 1982.

5. AE-65-0684, "Applicability to Individual BWRs of NUSCO Analyses of Coolant Impurities Effect on Radiolysis," June 1984.

6. BECo Letter 85-092, "Response to Questions Concerning Boston Edison's Reply to Generic Letter 84-09," May 21, 1985.

7. Telephone Conference Calls, BECo to NRC, (a) 3/19/85, (b) 3/26/85, (c) 6/18/85, (d) 7/25/85, (e) 8/7/85.