

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

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 FACIL: 50-261 H.B. Robinson Plant, Unit 2, Carolina Power & Light Co      05000261  
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SUBJECT: Forwards revised control room habitability sys conceptual design description, per TMI Item III.D.4.

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**JUL 26 1988**

SERIAL: NLS-88-061

R. B. RICHEY, Manager  
Licensing & Nuclear  
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United States Nuclear Regulatory Commission  
ATTENTION: Document Control Desk  
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H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2  
DOCKET NO. 50-261/LICENSE NO. DPR-23  
CONTROL ROOM HABITABILITY, TMI ITEM III.D.3.4  
REVISED SYSTEM DESCRIPTION

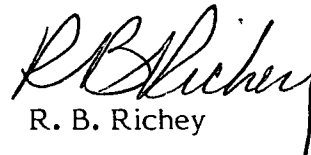
Gentlemen:

On July 30, 1985, the NRC issued a Safety Evaluation Report approving the proposed Control Room Habitability System for Carolina Power & Light Company's (CP&L) H. B. Robinson Steam Electric Plant, Unit No. 2 (HBR2). This approval was based upon the system description provided by CP&L in our June 2, 1983 submittal as supplemented by letters dated November 4, 1983, April 20, 1984, and June 7, 1985. Subsequent engineering evaluation has identified the need for certain modifications of the previously described design. The revised system conceptual design is provided in the attachment to this letter. Revised radiological dose calculations are expected to be available in August 1988. Results of these calculations will be provided to your staff.

Carolina Power & Light Company considers the changes to be improvements over the conceptual design provided by the previous submittals. Current plans are to implement the revised modifications prior to the end of Refueling Outage 13 (1990) as previously committed. System check-out, performance verification, and adjustments are scheduled to be completed within an additional six-month period following that outage. In order to procure the long lead items to support the modification schedule, NRC review and concurrence with the revised design is requested by October 3, 1988. Early identification of any potential problems would be appreciated, so that any schedule impact can be minimized.

If you have any questions concerning this issue, please contact Mr. R. W. Prunty at (919) 836-7318.

Yours very truly,

  
R. B. Richey

MDM/dtw (5391MDM)

Attachment

cc: Dr. J. Nelson Grace  
Mr. R. Lo  
Mr. L. Garner

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## ATTACHMENT

Reference 1: CP&L Letter LAP-83-212, dated June 2, 1983

Carolina Power & Light Company (CP&L) indicated in Reference 1 that we would notify your staff if we discovered more effective solutions or any design problems with the proposed modifications. Improvements to our previous design are noted below:

The Control Room habitability zone envelope will be limited to include only the areas normally requiring access in the event of an accident (e.g., Control Room, kitchen, toilet, and Shift Foreman's office). Previously, the Cable Spread Room, HVAC Equipment Room, and Relay Room were included within the Control Room habitability envelope. Subsequent evaluation indicates this approach is not appropriate. The proposed design eliminates these areas from interacting with the Control Room envelope. This restriction of the Control Room habitability envelope is consistent with NRC comments on the previous design. Ventilation and cooling requirements for those areas now excluded from the Control Room envelope are being addressed apart from the Control Room habitability issue. However, HVAC equipment room cooling will be provided to support the required operability of the Control Room ventilation equipment. A conceptual diagram of the proposed Control Room HVAC System is attached.

The Control Room HVAC system will be designed as a pressurization/recirculation type. During an accident, the habitability envelope will be pressurized with respect to surroundings to minimize the infiltration of potentially contaminated air. Pressurization of the smaller volume is much less complicated compared to pressurization of the previously proposed expanded habitability envelope.

The existing Control Room air handler and air-cooled condensing units will be replaced. New redundant supply fans and cooling coils will be installed for Control Room ventilation and cooling. New redundant water-cooled condensing units will also be added. The water-cooled condensing units will be protected from tornado generated missiles

The existing air filtration unit will be replaced. New redundant air cleaning unit fans will be installed to provide protection against single active failures of the filtration train.

Gravity and low leakage control dampers will complement the HVAC system. The system design eliminates the need for bubble tight isolation dampers in the air cleaning unit bypass duct. Air flow in the bypass duct during the emergency mode of operation will be designed to occur in the safe direction.

The safety-related components of the HVAC system will be designed to remain functional following design basis events as defined in the HBR2 UFSAR. The HVAC system will remain functional considering the single failure of an active component. The air filtration unit, air handling unit, gravity dampers, and fire dampers are not considered to be active components and are discussed below. Pneumatic control dampers will be redundant. The number of active components will be minimized to enhance reliability and simplify the system.

The air filtration unit is not considered an active component due to the absence of credible active failure mechanisms. The Control Room HVAC system will remain basically a recirculation type. Loading of the prefilters and HEPA filters will be minimized by the pressurization/recirculation system design. A water sparger for a charcoal fire is not required since methyl iodide loading following an accident is insufficient to result in ignition of the charcoal.

The air handling unit is also not considered an active component due to the absence of credible active failure mechanisms. The air handling unit houses a roughing filter and redundant cooling coils. The air handling unit fans are redundant and are separated outside the air handling unit housing.

Gravity dampers are not considered to be active components because their mechanical actuation due to natural forces is highly reliable. Providing redundancy of these components would unnecessarily complicate the system.

Fire dampers are also considered to be passive components. The dampers located in the Control Room HVAC system duct are a fusible link type which actuate by melting of the link at high temperature.

Each train of HVAC equipment will be powered from separate safety-related power supplies. Controls for each train of equipment will be independent.

The proposed design will limit congestion within the HVAC Equipment Room. Maintenance and operation activities will be enhanced by best use of limited space.

Due to a reevaluation of air leakage considerations associated with the revised design, existing Control Room HVAC System duct, which will now be located outside the habitability envelope, will be replaced with new duct to minimize infiltration.

## CONTROL ROOM HABITABILITY CONCEPTUAL FLOW DIAGRAM

