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SUBJECT: Application for amend to License DPR-23,revising TS Sections 3.15 & 4.15.

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United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
REQUEST FOR LICENSE AMENDMENT - CONTROL ROOM HABITABILITY

Gentlemen:

In accordance with the Code of Federal Regulations, Title 10, Parts 50.90 and 2.101, Carolina Power & Light Company (CP&L) hereby requests a revision to the Technical Specification (TS) for the H. B. Robinson Steam Electric Plant, Unit No. 2.

Modifications to the facility are required as a result of evaluations that were conducted pursuant to the requirements of NUREG 0737, Item III.D.3.4, "Control Room Habitability." The Control Room filter system previously identified in the Technical Specifications is being replaced with a new system. The proposed system was described in our letter dated July 26, 1988; the basis and results for the dose calculations were provided by our letter dated May 21, 1990.

Technical Specification Sections 3.15 and 4.15 require revision. The Technical Specification Section 3.15 specification of operability is revised to identify active and passive components and redundancy of active safety related components. The basis is revised to consider radiation exposure limits specified in 10 CFR 50, Appendix A, General Design Criterion 19, "Control Room."

Technical Specification Section 4.15 defines the revised surveillance requirements for the Control Room Air Conditioning System. Requirements are added for temperature and pressure testing and staggered testing of redundant equipment. Requirements for the air cleaning unit system follow the guidelines of Regulatory Guide 1.52 (1978) for a two inch deep carbon bed; ANSI N509-1980 and ANSI N510-1980 are factored into the design. The radiological dose calculation supporting the design is consistent with the elemental iodine and methyl iodide removal efficiencies and the particulate removal efficiency identified by Regulatory Guide 1.52.

411 Fayetteville Street o P. O. Box 1551 o Raleigh, N. C. 27602

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Attachment 1 is a Supporting Analysis/Safety Analysis which discusses this change; Attachment 2 is the Significant Hazards Determination; Attachment 3 is the proposed changed pages. Changes are indicated by a single bar in the right margin.

As discussed in our July 26, 1988 correspondence noted above, due to the extensive nature of the Control Room Habitability Modification, additional time will be required subsequent to Refueling 13 to complete system check out, performance verification and system optimization. The time required could be as much as six months. The actions required during this period could require a redundant train or redundant components to be out of service for periods longer than allowed by the proposed final Technical Specifications. In this regard, for the duration of this check out period, a transition from the old to the new specification will be required.

The intent during this period will be to assure that at least one component train, made up of components from either of the new redundant trains, will be available to mitigate the consequences of an accident. This train of components will be required to meet the requirements of the presently existing specifications including action statements and surveillance requirements. The acceptance criteria of the old specification may be directly applied to the new system and the same required performance can be achieved with the following administrative controls implemented:

1. The new system will be capable of maintaining a positive pressure during the emergency recirculation mode of operation, and

2. The carbon adsorber bed will have a methyl iodide removal efficiency of at least 99% to allow a 95% decontamination efficiency to be used in the dose calculation.

The new components are improvements over the old components and the new system is a better system than existed prior to Refueling 13.

The new specifications will be implemented following completion and approval of the testing/optimization phase. In this regard it is requested that the amendment be issued with an implementation date of no later than six months after the date of synchronization to the grid following Refueling 13.

Questions regarding this matter may be referred to Mr. R. W. Prunty at (919) 546-7318.

Yours very truly,

A. B Cutter
Vice President
Director - Special Nuclear Projects

JSK/ecc (772RNP)

Attachments

A. B Cutter, having been first duly sworn, did depose and say that the information contained herein is true and correct to the best of his information, knowledge and belief; and the sources of his information are officers, employees, contractors, and agents of Carolina Power & Light Company.

Lisa M. Randall
Notary (Seal)

LISA RANDALL NOTARY PUBLIC WAKE COUNTY, N.C.

My commission expires: 6-7-93

cc: Mr. S. D. Ebneter
Mr. L. Garner (NRC-HBR)
Mr. R. Lo
Mr. Heyward G. Shealy (SC)
Attorney General (SC)

ATTACHMENT 1

SUPPORTING ANALYSES/SAFETY ANALYSES

Design changes to the plant are required as a result of evaluations that were conducted in accordance with the requirements of NUREG 0737, Item III.D.3.4, "Control Room Habitability." The purpose of Item III.D.3.4 is "to assure that control room operators are adequately protected against the effects of accidental release of toxic and radioactive gases and that the nuclear power plant can be operated or shutdown under design basis accident conditions."

The evaluations identified the need to make improvements to reduce the dose that operators could receive in a design basis accident and to improve reliability by assuring that a failure of any active component of the Control Room HVAC System would not result in system inoperability.

The primary functions of the Control Room air conditioning system are control room envelope cooling and air cleaning. The system and its equipment have been designed and procured to nuclear safety-related, Seismic category I requirements.

The deficiencies identified with the existing habitability system centered predominantly from findings resulting from review of Standard Review Plan (SRP) 6.4, "Control Room Habitability System," including reference documents. Reference documents having large impact on the modification design effort include SRP 6.5.1, "ESF Atmosphere Cleanup Systems;" SRP 9.4.1, "Control Room Area Ventilation System;" Regulatory Guide 1.52, "Design, Testing, and Maintenance Criteria for Engineered Safety Feature Atmospheric Cleanup System Air Filtration and Absorption Units of Light Water Cooled Nuclear Power Plants;" ANSI N509, "Nuclear Power Plant Air Cleaning Units and Components;" and ANSI N510, "Testing of Nuclear Air Cleaning Systems." A comparison of the Control Room Air Conditioning System with the regulatory positions of Regulatory Guide 1.52 has been considered in the design of the system.

The modifications to the Control Room HVAC System assure that the control room operators will not receive a radiological dose exceeding the limits of 10CFR Part 50, Appendix A, General Design Criterion 19, "Control Room."

The radiological dose calculation was conducted using the guidance of the paper written by K. G. Murphy and K. M. Campe, "Nuclear Power Plant Control Room Ventilation System Design for Meeting General Design Criterion 19," 13th AEC Air Cleaning Conference, August 1974. The most severe Control Room hazard is a maximum hypothetical LOCA. CP&L Calculation RNP-B/MECH-1059 documents the analysis for operator radiation dose. The maximum control room operator dose allowed by GDC 19 is 5 REM whole body and 30 REM thyroid; the calculated operator dose allows margin below the allowable.

The reliability of the Control Room HVAC System to perform its safety function is increased by providing fully redundant safety related active components. The system is designed to remain operable following a single active failure concurrent with an initiating event.

CONCLUSIONS:

The probability of occurrence of any Chapter 15 accident previously evaluated is not increased by this modification and Technical Specification change because neither the Control Room HVAC system proposed nor the system being replaced contribute to the probability of any previously evaluated accident. The reliability and availability of the new system is enhanced over that of the old system due to the redundancy of the safety-related active components provided. Properly coordinated power supplies are provided for the new equipment.

There is no increase in the consequences of an accident previously evaluated. Instead, the consequences of an accident are reduced because of the reduction in the radiological dose to the control room operators resulting from an improved filter system and the reduction of unfiltered inleakage into the control room. Also, redundancy of active safety-related components enhances system availability and reliability.

The dose calculations for the modifications to the Control Room HVAC System demonstrate that the dose to the control room operators does not exceed the limits established by 10CFR50, Appendix A, General Design Criteria 19, "Control Room."

The possibility of a new kind or different kind of accident from any accident previously evaluated will not be created by this modification and Technical Specification change. The Control Room HVAC System interfaces with the safety-related electrical distribution system and the safety-related service water system. Proper coordination of power supplies is provided; the service water system addition design considers the additional demand on the service water system and is designed to Seismic Class 1 requirements. The redundancy of safety-related active components provided by this modification increases the reliability of the Control Room HVAC System to perform its function. Adequate separation between safety trains is provided to assure that a single failure of an active component will not result total system inoperability. No single failure can cause adverse conditions resulting in new accident scenarios not bounded by present accident analyses.

The margin of safety is enhanced by this modification and Technical Specification change. Redundancy of equipment is provided where it did not previously exist. Radiological conditions for control room operators are improved due to the higher efficiency charcoal bed and the reduced unfiltered inleakage thereby improving the ability of the operator to respond to the accidents previously evaluated.

The modifications do not introduce an unreviewed safety question.

ATTACHMENT 2

SIGNIFICANT HAZARDS DETERMINATION

The basis for determining if a significant hazard exists from the proposed change is as follows:

A. **Would the operation of the facility involve a significant increase in the probability or consequence of an accident previously evaluated?**

The probability of occurrence of any Chapter 15 accident previously evaluated is not increased by this modification and Technical Specification change because neither the Control Room Habitability System proposed nor the system being replaced contribute to the probability of any previously evaluated accident. The reliability and availability of the new system is enhanced over that of the old system (pre-refueling outage 13) due to the redundancy of the safety-related active components provided. Properly coordinated power supplies are provided for the new equipment.

There is no increase in the consequences of an accident previously evaluated. Instead, the consequences of an accident are reduced because of the reduction in the radiological dose to the control room operators resulting from an improved filter system and the reduction of unfiltered inleakage into the control room. Also, redundancy of active safety-related components enhances system availability and reliability.

The dose calculations for the modifications to the Control Room Habitability System demonstrate that the dose to the control room operators does not exceed the limits established by 10 CFR 50, Appendix A, General Design Criterion 19, "Control Room."

B. **Would the operation of the facility create the possibility of a new or different kind of accident from any accident previously evaluated?**

The possibility of a new kind of accident from any accident previously evaluated will not be created by this modification and Technical Specification change. The Control Room Habitability System interfaces with the safety-related electrical distribution system and the safety-related service water system. Proper coordination of power supplies is provided; the service water system addition design considers the additional demand on the service water system and is designed to Seismic Class 1 requirements. The redundancy of safety-related active components provided by this modification increases the reliability of the Control Room Habitability System to perform its function. Adequate separation between safety trains is provided to assure that a single failure of an active component will not result in system inoperability. No single active failure can cause adverse conditions resulting in new accident scenarios not bounded by present accident analyses.

The possibility of a different kind of accident from any accident previously evaluated will not be created by this modification and Technical Specification change. The Control Room Habitability System interfaces with the safety-related electrical distribution system and the safety-related service water system. Proper coordination of power supplies is provided; the service water system addition design considers the additional demand on the service water system and is designed to Seismic Class 1 requirements. The redundancy of safety-related active components provided by this modification increases the reliability of the Control Room Habitability System to perform its function. Adequate separation between safety trains is provided to assure that a single failure of an active component will not result in system inoperability. No single active failure can cause adverse conditions resulting in new accident scenarios not bounded by present accident analyses.

C. **Would the operation of the facility involve a significant reduction in the margin of safety?**

The margin of safety is enhanced by this modification and Technical Specification change. Redundancy of equipment is provided where it did not previously exist. Radiological conditions for control room operators are improved due to the higher efficiency charcoal bed and the reduced unfiltered inleakage thereby improving the ability of the operator to respond to the accidents previously evaluated.