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JAN 06 1983

Docket No. 50-261

Mr. E. E. Utley, Executive Vice President
 Power Supply and Engineering & Construction
 Carolina Power and Light Company
 Post Office Box 1551
 Raleigh, North Carolina 27602

Dear Mr. Utley:

The Commission has issued the enclosed Amendment No. 74 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2. The amendment consists of changes to the Technical Specifications in response to your application transmitted by letter dated October 1, 1982.

The amendment revises the Technical Specifications to provide new operability requirements for the auxiliary feedwater (AFW) pumps and to provide additional reporting requirements for the AFW pumps becoming inoperable.

We have also included our final Safety Evaluation concerning NUREG-0737 Item II.E.1.1, Auxiliary Feedwater System Reliability. This supplements our Safety Evaluation previously sent to you by our letter dated December 2, 1980 which contained open items. The open items of our original Safety Evaluation concerning safety grade flow indication and automatic initiation are under review and will be provided as a separate evaluation under TMI Item II.E.1.2 of NUREG-0737. In addition, we have reached an agreement with your staff that our concern for providing positive tornado missile protection for the AFW water sources will be handled as a separate issue.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

ORIGINAL SIGNED

Glode Requa, Project Manager
 Operating Reactors Branch #1
 Division of Licensing

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Enclosures:

1. Amendment No. 74 to DPR-23
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
 See next page

**F.R. NOTICE
 +
 AMENDMENT**

OFFICE	ORB#1:DL CParrish	ORB#1:DL GRequa:dm	ORB#4:DL PWagner	ORB#1:DL SVarga	AD/OR:DL GLainas	OELD M. KARMAN
SURNAME	CParrish	GRequa:dm	PWagner	SVarga	GLainas	M. KARMAN
DATE	12/15/82	12/30/82	12/30/82	12/15/82	12/15/82	01/16/83

Mr. E. E. Utley
Carolina Power and Light Company

cc: G. F. Trowbridge, Esquire
Shaw, Pittman, Potts and Trowbridge
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Washington, D. C. 20036

Regional Radiation Representatives
EPA Region IV
345 Courtland Street, N.E.
Atlanta, Georgia 30308

Mr. McCuen Morrell, Chairman
Darlington County Board of Supervisors
County Courthouse
Darlington, South Carolina 29535

State Clearinghouse
Division of Policy Development
116 West Jones Street
Raleigh, North Carolina 27603

Attorney General
Department of Justice
Justice Building
Raleigh, North Carolina 27602

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
H. B. Robinson Steam Electric Plant
Route 5, Box 266-1A
Hartsville, South Carolina 29550

Alan S. Rosenthal, Chairman
Atomic Safety and Licensing
Appeal Board Panel
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

CAROLINA POWER AND LIGHT COMPANY

DOCKET NO. 50-261

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 74
License No. DPR-23

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power and Light Company (the licensee) dated October 1, 1982, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public; and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

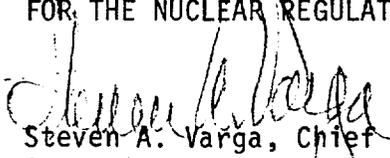
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 3.B of Facility Operating License No. DPR-23 is hereby amended to read as follows:

(B) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 74, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION


Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 6, 1983

ATTACHMENT TO LICENSE AMENDMENT

AMENDMENT NO. 74 TO FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
3.4-1	3.4-1
3.4-2	3.4-2
-----	3.4-2a
3.4-3	3.4-3
6.9-9	6.9-9

3.4 SECONDARY STEAM AND POWER CONVERSION SYSTEM

Applicability

Applies to the operating status of turbine cycle.

Objective

To define conditions of the turbine cycle steam-relieving capacity. Auxiliary Feedwater System and Service Water System operation is necessary to ensure the capability to remove decay heat from the core.

Specification

- 3.4.1 The reactor coolant shall not be heated above 350°F unless the following conditions are met:
- a. A minimum turbine cycle steam relieving capability of twelve (12) main steam safety valves operable.
 - b. Three auxiliary feedwater pumps must be operable.
 - c. A minimum of 35,000 gallons of water in the condensate storage tank and an unlimited water supply from the lake via either leg of the plant Service Water System.
 - d. Essential features including system piping and valves directly associated with the above components are operable.
 - e. The main steam stop valves are operable and capable of closing in five seconds or less.

3.4.2 The specific activity of the secondary coolant system shall be $\leq 0.10 \mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131 under all modes of operation from cold shutdown through power operation. When the specific activity of the secondary coolant system is $> 0.10 \mu\text{Ci}/\text{gram}$ DOSE EQUIVALENT I-131, be in at least HOT SHUTDOWN within 6 hours and COLD SHUTDOWN within the following 30 hours.

The specific activity of the secondary coolant system shall be determined to be within the limit by performance of the sampling and analysis program of Table 4.1-2.

3.4.3 If, during power operations, any of the specifications in 3.4.1, with the exception of 3.4.1.b above, cannot be met within 24 hours, the operator shall initiate procedures to put the plant in the hot shutdown condition. If any of these specifications cannot be met within an additional 48 hours, the operator shall cool the reactor below 350°F using normal procedures.

3.4.4 With one auxiliary feedwater pump INOPERABLE, restore that auxiliary feedwater pump to OPERABLE status within 72 hours, or;

a. Submit a special report to the Commission in accordance with Specification 6.9.3.f within 30 days outlining the cause of the inoperability and the action taken to return the pump to OPERABLE status, and;

b. Restore all three auxiliary feedwater pumps to operable status within 7 days or be in at least HOT SHUTDOWN within 6 hours.

3.4.5 With two auxiliary feedwater pumps INOPERABLE, restore at least one inoperable auxiliary feedwater pump to OPERABLE status within 24 hours or be in at least HOT SHUTDOWN within 6 hours.

3.4.6 In the event that the number of channels of the Auxiliary Feedwater Initiation circuits falls below the limits given in the column entitled Minimum Operable Channels, or Minimum Degree of Redundancy

cannot be achieved, operation shall be limited according to the requirements shown in Column 3 of Table 3.4-1. The Auxiliary Feedwater System Automatic Initiation Setting Limits are shown in Table 3.4-2. If the setpoint is less conservative than the value shown in the Allowable Values column to Table 3.4-2, declare the channel inoperable and operation shall be limited according to the requirement shown in Column 3 of Table 3.4-1.

Basis

A reactor shutdown from power requires removal of core decay heat. Immediate decay heat removal requirements are normally satisfied by the steam bypass to the condenser. Therefore, core decay heat can be continuously dissipated via the steam bypass to the condenser as feedwater in the steam generator is converted to steam by heat absorption. Normally, the capability to return feedwater flow to the steam generators is provided by operation of the turbine cycle feedwater system.

The twelve main steam safety valves have a total combined rated capability of 10,068,845 lbs/hr. The total full power steam flow is 10,068,845 lbs/hr.; therefore, twelve (12) main steam safety valves will be able to relieve the total steam flow if necessary.⁽¹⁾ Following a loss of load, which represents the worst transient, steam flows are below the total capacity of the 12 safety valves. Therefore, over-pressurization of the secondary system is not possible.

In the unlikely event of complete loss of turbine-generator and offsite electrical power to the plant, decay heat removal would continue to be assured by the availability of either the steam-driven auxiliary feedwater pump or one of the two motor-driven auxiliary steam generator feedwater pumps operated from the diesel generators and steam discharge to the atmosphere via the main steam safety valves and atmospheric relief valves. One motor-driven auxiliary feedwater pump can supply sufficient feedwater for removal of decay heat from the plant.⁽²⁾ In order to provide a high degree of reliability all three auxiliary feedwater pumps will be operable prior to exceeding 350°F. The minimum amount of water in the condensate storage tank is the amount needed for at least two-hours operation at hot standby conditions. If the outage is more than two hours, deep well or Lake Robinson water may be used.

An unlimited supply is available from the lake via either leg of the plant Service Water System for an indefinite time period.

6.9.3 Special Reports

Special reports shall be submitted to the Director of the Regional Office of Inspection and Enforcement within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification:

	<u>Area</u>	<u>Reference</u>	<u>Submittal Date</u>
a.	Containment Leak Rate Testing	4.4	Upon completion of each test
b.	Containment Sample Tendon Surveillance	4.4	Upon completion of the inspection at 25 years of operation
c.	Post-operational Containment Structural Test	4.4	Upon completion of the test at 20 years of operation
d.	Fire Protection System	3.14	As specified by limiting condition for operation
e.	Overpressure Pro- tection System Operation	3.1.2.1e	Within 30 days of operation
f.	Auxiliary Feedwater Pumps	3.4	Within 30 days after becoming INOPERABLE



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 74 TO FACILITY OPERATING LICENSE NO. DPR-23

CAROLINA POWER AND LIGHT COMPANY

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261

1.0 Introduction

By letter dated December 2, 1980, the NRC provided the licensee an interim Safety Evaluation (SE) for the Auxiliary Feedwater System Evaluation in accordance with NUREG-0737, Item II.E.1.1. This SE concluded that all but the following issues, involved in the resolution of Item II.E.1.1, had been acceptably addressed:

1. Short Term Recommendation GS-1 - Technical Specifications for plant operation with inoperable AFW pumps in accordance with current Technical Specifications.
2. Additional Short Term Recommendation 1 - Condensate storage tank level indicators and alarms.
3. Additional Short Term Recommendation 3 - The safety grade design for auxiliary feedwater flow indication.
4. Long Term Recommendation GL-3 - Safety grade automatic initiation of AFW system flow and providing system control capability independent of any AC power source for at least two hours.
5. Long Term Recommendation GL-5 - Safety grade design for auxiliary feedwater automatic initiation signals and circuits.
6. Additional Long Term Recommendation 4 - Provide positive tornado missile protection for and of the AFW water sources.

The licensee provided responses to these open items by letters dated January 9, June 8, and August 7, 1981 and October 1, 1982. A meeting was also held with the licensee on March 18, 1981 to discuss the open items. Open items 3 and 5, above, concerning AFW flow indication and automatic initiation, are under review and will be provided as a separate evaluation as Item II.E.1.2 of NUREG-0737. The evaluations for open items 1, 2, 4 and 6 are provided in this SE.

2.0 Evaluation

A. Short Term Recommendations

Recommendation GS-1 - "The licensee should propose modifications to the Technical Specifications to limit the time that one AFW system pump and its associated flow train and essential instrumentation can be inoperable. The outage time limit and subsequent action time should be as required in current Technical Specifications; i.e., 72 hours and 12 hours, respectively."

In our original SE, we indicated that the licensee was not in compliance with this recommendation as the licensee proposed to revise plant Technical Specifications to allow plant operation for up to seven days with one AFW pump inoperable and up to 24 hours with two AFW pumps inoperable rather than the current Standard Technical Specification limiting conditions for operation of 72 hours with one pump inoperable and immediate shutdown with two pumps inoperable. In letters dated January 9, 1981 and June 8, 1981, the licensee provided further information to support the proposed Technical Specification revision. The licensee maintains that substantial improvement in AFW unavailability (a factor of approximately 11) is gained by the proposed Technical Specification change. The licensee points out that system redundancy is still maintained with one AFW pump inoperable. In addition, in order to perform thorough maintenance on the turbine driven pump, seven days is required as a manufacturer's field service representative is necessary to assist in the maintenance effort and thus additional time is necessary in order for this person to get to the site. The licensee further points out that since the AFW is required for normal plant shutdown, an immediate shutdown when two AFW pumps are inoperable is not prudent as system redundancy is not available and some investigation should be undertaken before challenging the degraded system. The licensee has proposed 24 hours as a reasonable time to assess the cause of the failures and attempt to restore system redundancy particularly if the cause of the failures is a common mode which may also affect the one operable pump.

We have performed independent evaluations on the subject of AFW pump inoperability due to maintenance outages and its effect on system unavailability with respect to the risk of core melt. These studies do not show significant improvement in system unavailability or effect on core melt risk between a 72 hour and 7 day limiting condition for operation for assumed infrequent outages when applied to the motor driven AFW pumps. However, they do indicate that a major accident sequence contributor to the total plant risk of core melt, namely station blackout (loss of all AC power) is affected by the availability of the turbine driven AFW pump. The availability of the motor driven AFW pumps is not as critical in the sequence as no credit can be given them in a total loss of AC power condition. Further, discussions with the licensee during the March 18, 1981 meeting indicate that the turbine driven pump is down for repair at fairly frequent intervals. This was shown to be significant in a recent event (reported in LER 81-17 dated July 1, 1981) where a motor driven pump tripped at the time the turbine driven pump was down for maintenance during a plant shutdown leaving only one operable AFW pump. Consequently, we

believe turbine driven pump availability should be more closely followed and kept at the maximum possible level. Thus, we concur with the licensee that the Technical Specifications may be revised to allow a motor driven pump to be inoperable for seven days prior to beginning hot shutdown. However, we continue to require the licensee to modify the Technical Specification concerning the turbine driven pump to indicate that every measure possible be taken to restore that pump to operable status within 72 hours. During subsequent discussions with the licensee it was agreed to include this requirement in their Technical Specification (TS). By letter dated October 1, 1982 the TS revision was submitted for approval.

Independent evaluations on the effect of core melt resulting from various allowable outage times for two AFW pumps have not been performed. However, in our judgment, it is prudent to allow some time period to assess the cause of a loss of redundancy in the AFWS rather than immediately challenging the one operable pump by initiating a reactor shutdown. Thus, we concur with the licensee's proposed Technical Specification change for allowing 24 hours before shutting down with two AFW pumps inoperable.

Based on the above and the licensee's Technical Specification revision to restore the turbine driven AFW pump to operable status within 72 hours, we conclude that the licensee is in compliance with this recommendation.

B. Additional Short Term Recommendations

Recommendation - "The licensee should provide redundant level indications and low level alarms in the control room for the AFW system primary water supply to allow the operator to anticipate the need to make up water or transfer to an alternate water supply and prevent a low pump suction pressure condition from occurring. The low level alarm setpoint should allow at least 20 minutes for operator action, assuming that the largest capacity AFW pump is operating."

In our original SE, we indicated that the licensee had not committed to meet the required implementation date of January 1, 1982 for installation of the fully upgraded redundant condensate level instrumentation. By letter dated January 9, 1981, the licensee indicated that the redundant condensate storage tank low level alarms will be installed by January 1, 1982. We have verified that the redundant instrumentation was installed by January 1, 1982. We conclude that the licensee's response is acceptable, and therefore, the licensee is in compliance with this recommendation.

C. Long Term Recommendations

Recommendation GL-3 - "At least one AFW system pump and its associated flow path and essential instrumentation should automatically initiate AFW system flow and be capable of being operated independently of any AC power source for at least two hours. Conversion of DC power to AC power is acceptable."

In our original SE, we indicated that the licensee was not in compliance with this recommendation as manual actions were required to initiate flow from the turbine driven AFW pump in the event of loss of all AC power. In letters dated January 9, 1981 and June 8, 1981, the licensee presented further information to support their position that the dedicated shutdown system and limited procedural manual actions provide adequate assurance that the turbine driven AFW pump can be started within the required time. Transfer of control for the steam supply valves for the AFW pump turbine to the dedicated shutdown control panel and manual realignment of cooling water flow to the turbine driven pump lube oil coolers can be accomplished before steam generator water inventory is appreciably depleted (dryout). This capability has been verified in control room evacuation procedure walk-throughs. We have reviewed the information submitted and conclude that the turbine driven AFW can be expeditiously started manually in a loss of all AC power condition. We conclude that the licensee meets the intent of this recommendation, in that he has proposed an acceptable alternative.

Additional Long Term Recommendation No. 4 - "None of the AFW water sources are protected against tornado missiles. The licensee should complete an evaluation considering a postulated tornado plus a single active failure to determine any AFW system modifications or procedures necessary to assure a sufficient AFW water supply or assure that the plant can be brought to a safe shutdown condition in such an event."

The licensee's position, contained in letters dated January 9 and August 7, 1981, is that sufficient redundancy and separation of the AFW water sources coupled with the low probability of a tornado and concurrent loss of offsite power, will assure the availability of an AFW supply even when considering a single active failure. As a result of our review we find that the licensee has not provided sufficient information to demonstrate that an AFW water source would be available in the event of tornado generated missiles at the site.

Our review of the information and diagram provided in the licensee's August 7, 1981 letter indicates that a tornado passing through the H. B. Robinson site in a straight line from a west to east direction would affect the condensate storage tank, switchyard, and service water pumps intake structure. Thus, loss of offsite power and failure of all AFW water sources is a probable occurrence.

We are concerned with the potential loss of service water system, not only as a backup source of AFW supply, but as an integral portion of the ultimate heat sink (UHS) required to assure a safe shutdown. All the service water pump motors and some system piping are located at a common intake structure with no separation provided and are fully exposed to the ambient environment. In addition, loss of offsite power would lose the availability of the deep-well AFW water source.

We have discussed these concerns with the licensee and an agreement has been reached that this subject will be handled as a separate issue. The licensee has agreed to provide supporting information within 120 days of this evaluation which demonstrates:

1. That sufficient redundancy and separation of the AFW sources coupled with the low probability of a tornado and concurrent loss of offsite power will assure the availability of an AFW supply even when considering a single active failure. This information should include a probabilistic analysis to demonstrate the low probability of tornado missile damage to all AFW sources.
2. Commit to provide positive missile protection for one of the AFW water supplies.

We find the above agreement to be an acceptable approach to this concern.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated, does not create the possibility of an accident of a type different from any evaluated previously, and does not involve a significant reduction in a margin of safety, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: January 6, 1983

UNITED STATES NUCLEAR REGULATORY COMMISSIONDOCKET NO. 50-261CAROLINA POWER AND LIGHT COMPANYNOTICE OF ISSUANCE OF AMENDMENT TO FACILITY
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 74 to Facility Operating License No. DPR-23 issued to Carolina Power and Light Company (the licensee), which revised Technical Specifications for operation of the H. B. Robinson Steam Electric Plant, Unit No. 2, (the facility) located in Darlington County, South Carolina. The amendment is effective as of the date of issuance.

The amendment revises the Technical Specification to provide new operability requirements for the auxiliary feedwater (AFW) pumps and to provide additional reporting requirements for the AFW pumps becoming inoperable.

The application for amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since this amendment does not involve a significant hazards consideration.

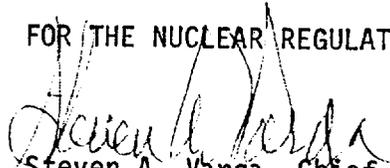
The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

- 2 -

For further details with respect to this action, see (1) the application for amendment dated October 1, 1982, (2) Amendment No. 74 to License No. DPR-23, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N.W., Washington, D.C. and at the Hartsville Memorial Library, Home and Fifth Avenues, Hartsville, South Carolina 29550. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 6th day of January, 1983.

FOR THE NUCLEAR REGULATORY COMMISSION


Steven A. Varga, Chief
Operating Reactors Branch #1
Division of Licensing