

February 7, 1991

Docket No. 50-261

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Mr. Lynn W. Eury
Executive Vice President
Power Supply
Carolina Power & Light Company
Post Office Box 1551
Raleigh, North Carolina 27602

Dear Mr. Eury:

SUBJECT: ISSUANCE OF AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-23 - H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2, REGARDING STATION BATTERY AND BATTERY CHARGER TECHNICAL SPECIFICATION CHANGES (TAC NO. 73104)

The Nuclear Regulatory Commission has issued the enclosed Amendment No. 132 to Facility Operating License No. DPR-23 for the H. B. Robinson Steam Electric Plant, Unit No. 2. This amendment consists of changes to the Technical Specifications in response to your request dated May 8, 1989, as supplemented September 20, 1989, and September 19, 1990.

The amendment changes the Technical Specifications to (1) add operability and associated surveillance requirements for battery chargers, (2) add provisions of an action statement and clarify surveillance requirements related to the station batteries, and (3) provide editorial clarifications in Sections 3.7 and 4.6.3.

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular bi-weekly Federal Register notice.

Sincerely,

Original Signed by:

Ronnie H. Lo, Senior Project Manager
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:

- 1. Amendment No. 132 to DPR-23
 - 2. Safety Evaluation
- cc w/enclosures:
See next page

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H. B. Robinson Steam Electric
Plant, Unit No. 2

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

CAROLINA POWER & LIGHT COMPANY

DOCKET NO. 50-261

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

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 132
License No. DPR-23

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Carolina Power & Light Company (the licensee), dated May 8, 1989, as supplemented September 20, 1989, and September 19, 1990, 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. 132, are hereby incorporated in the license. Carolina Power & Light Company 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

Original Signed By:
Ronnie Lo for:

Elinor G. Adensam, Director
Project Directorate II-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: February 7, 1991

OFC	:LA:PD21:DRPR:PM:PD21:DRPR:Frosar	OGC	:D:PD21:DRPR	:	:
NAME	: PAnderson	: RLo:sw	: SELB:NRR	: Adensam	:
DATE	: 12/5/90	: 12/5/90	: 1/14/91	: 1/24/91	: 2/5/91

ATTACHMENT TO LICENSE AMENDMENT NO. 132

FACILITY OPERATING LICENSE NO. DPR-23

DOCKET NO. 50-261

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

<u>Remove Pages</u>	<u>Insert Pages</u>
3.7-1	3.7-1
3.7-2	3.7-2
3.7-3	3.7-3
-	3.7-3a
3.7-4	3.7-4
4.6-3	4.6-3
4.6-3a	4.6.-3a
4.6-4	4.6-4

3.7 AUXILIARY ELECTRICAL SYSTEMS

Applicability

Applies to the availability of electrical power for the operation of plant auxiliaries.

Objective

To define those conditions of electrical power availability necessary (1) to provide for safe reactor operation, and (2) to provide for the continuing availability of engineered safeguards.

Specification

3.7.1 The reactor shall not be made critical without:

- a) The 110 KV-4160 Volt start-up transformer in service;
- b) 480-Volt buses E1 and E2 energized;
- c) 4160-Volt buses 2 and 3 energized;
- d) Two diesel generators OPERABLE with a minimum supply of 19,000 gallons of fuel oil available to the diesel generators from the Unit 2 diesel generator fuel oil storage tank and an additional 15,000 gallons available to the diesel generators from either the Unit 1 I-C turbine fuel oil storage tanks or a combination of the Unit 1 I-C turbine fuel oil storage tanks and the Unit 2 diesel generator fuel oil storage tank, and with the following protective trips for each diesel generator bypassed:
 - 1) Low lube oil pressure
 - 2) Low coolant pressure
 - 3) High coolant temperature
 - 4) High crankcase pressure
 - 5) Start failure - Governor Shutdown

- e) Station batteries A and B, a battery charger, A or A-1 and B or B-1, on each battery and their DC distribution systems are operable.

3.7.2 During power operation the following components may be inoperable:

- a) Provided both diesel generators are operable, power operation may continue with the start-up transformer out of service for 24 hours without reporting to the NRC.
- b) Power operation may continue with the start-up transformer out of service beyond 24 hours provided both diesel generators are operable and the reporting requirements of Specification 6.6.1 are followed.
- c) Power operation may continue if the start-up transformer and one diesel generator is inoperable provided the reporting requirements of Specifications 6.6.1 and 6.6.2 are followed.
- d) Power operation may continue for seven days if one diesel generator is inoperable provided the remaining diesel generator is tested daily to ensure operability and the engineered safety features associated with this diesel generator shall be operable.
- e) During periods when a diesel generator is being operated for testing purposes, its protective trips listed in Specification 3.7.1.d need not be bypassed after the diesel generator has properly assumed the load on its bus.

- f) Power operation may continue with one battery inoperable provided the inoperable battery is restored to operable status within 2 hours or be in at least hot shutdown within 8 hours and in cold shutdown within the next 30 hours.
- g) Power operation may continue with one battery charger inoperable provided the inoperable charger is restored to operable status within 2 hours or the battery's backup charger is placed in service within 2 hours.
- h) With both battery chargers for a battery inoperable restore a battery charger to operable status within 2 hours or be in at least hot shutdown within 8 hours and in cold shutdown within the next 30 hours.

3.7.3 Backfeeding the E1 and E2 safety related busses through the main and unit auxiliary transformers will only occur during cold shutdown, unless nuclear safety considerations require it to be done during hot shutdown.

Basis

The electrical system equipment is arranged so that no single contingency can deactivate enough safety features equipment to jeopardize the plant safety. The 480-volt equipment is arranged on 9 buses. The 4160-volt equipment is supplied from 5 buses.

Multiple outside sources supply station service power to the plant.

The plant auxiliary equipment is arranged electrically so that multiple items receive their power from the two different sources. For example, the charging pumps are supplied from the 480-volt buses No. DS, E1 and E2; the four containment fans are divided between 480-volt buses No. E1 and E2; and the two residual heat removal pumps are on separate 480-volt buses No. E1 and E2. Valves are supplied from motor control centers.

One outside source of power is required to give sufficient power to run normal operating equipment. One transmission line can supply all the plant auxiliary power. The 110-4.16 KV start-up transformer can supply all the auxiliary loads.

The bus arrangements specified for operation ensure that power is available to an adequate number of safety features auxiliaries. With additional switching, more equipment could be out of service without infringing on safety.

Two diesel generators have sufficient capacity to start and run at design load all of the engineered safety features equipment. The safety features operated from one diesel generator can adequately cool the core for any Loss-of-Coolant accident, and they also maintain the containment pressure within the design value. The minimum diesel fuel oil inventory available to the diesel generators from the Unit 2 diesel generator fuel oil storage tank (Unit 2 tank) is maintained at all times to assure the operation of either 1) both diesel generators at rated design capacity for at least 48 hours⁽¹⁾, or 2) one diesel generator at rated design capacity for at least 96 hours. Diesel fuel is also available to the Unit 2 tank from four Unit 1 I-C turbine fuel oil storage tanks (Unit 1 tanks). This additional storage is comprised of three I-C turbine fuel oil storage tanks at approximately 23,900 gallons capacity each, and one I-C turbine vertical light-off fuel oil storage tank at approximately 23,900 gallons capacity, for a total Unit 1 fuel oil storage capacity of approximately 95,600 gallons. (The Unit 1 I-C turbine horizontal light-off fuel oil storage tank capacity is not available to the Unit 2 tank.) Connections are provided for fuel oil transfer from the four Unit 1 tanks to the Unit 2 tank. Therefore, the minimum diesel fuel oil inventory available to the diesel generators from the total on-site diesel fuel oil storage capacity is maintained at all times to assure the operation of one diesel generator at its rated design capacity for seven days. "Rated design capacity" for this specification is defined as operation at 2500 kW for 22 hours and 2750 kW for 2 hours in any 24-hour period.

Additional supplies of diesel oil are available in the Hartsville area and from port terminals at Charleston, S.C. and Wilmington, N.C., and inland terminals at Columbia, S.C., Charlotte, N.C., Greensboro, N.C., Fayetteville, N.C., and Raleigh, N.C. Ample trucking facilities exist to assure deliveries to the site within eight hours.

At least one battery charger for each station battery shall normally be in service so that the batteries will always be at full charge in anticipation of a loss-of-AC power incident. This ensures that adequate DC power will be available for emergency uses.

4.6.3.5 The batteries shall be subjected to a performance test once every five years.

4.6.3.6 The batteries shall be subjected to a service test at least once per 18 months, during a shutdown, by verifying that the battery capacity is adequate to supply and maintain in OPERABLE status all of the actual or simulated emergency loads for the design duty cycle. Surveillance 4.6.3.5 may be performed at five year intervals in lieu of this test.

4.6.4 Pressurizer Heaters' Emergency Power Supply

The emergency power supply for the pressurizer heaters shall be demonstrated operable each refueling shutdown by transferring power from normal to the emergency power supply and energizing the heaters.

4.6.5 Battery Chargers

Demonstrate the in-service battery charger is operable by monitoring the output voltage daily, five days per week, and during normal equalizing charges.

Basis

The tests specified are designed to demonstrate that the diesel generators will provide power for operation of equipment. They also assure that the emergency generator system controls and the control systems for the safety features equipment will function automatically in the event of a loss of all normal 480 V AC station service power.⁽¹⁾

The test to ensure proper operation of engineered safety features upon loss of AC power is initiated by tripping the breakers supplying normal power to the 480 volt buses and initiating a safety injection signal. This test demonstrates the proper tripping of motor feeder breakers, main supply and tie breakers on the affected bus, operation of the diesel generators, and sequential starting of essential equipment. The test of the diesel protective bypass circuits is performed to verify their operability.

The testing frequency specified will be often enough to identify and correct any mechanical or electrical deficiency before it can result in a system failure. The fuel supply and starting circuits and controls are continuously monitored and any faults are alarm indicated. An abnormal condition in these systems would be signaled without having to place the diesel generators themselves on test.

On-site emergency power is available from two emergency diesel-generator sets. Each engine-generator set consists of a Fairbanks-Morse Model 38TD8-1/8 engine coupled to a Fairbanks-Morse 3125 kva, 0.8 power factor, 900 RPM, 3 phase, 60 cycle, 480 volt generator. The units have a continuous rating of 2500 kW with a 2-hour overload capability of 2750 kW in any 24-hour period.

Each unit as a backup to the normal standby AC power supply is capable of sequentially starting and supplying the power requirement of one complete set of safety features equipment. It can accept full load within 35 seconds after the initial starting signal,⁽¹⁾ and will sequentially start and supply the power requirements of one complete set of safety features equipment in 50 seconds.⁽²⁾

A supply of 19,000 gallons of fuel will ensure the operation of both diesels carrying rated design capacity for at least 48 hours or one diesel for at least 96 hours. An additional 15,000 gallons will be available to assure an adequate fuel supply for at least seven days of operation of a single diesel generator at its rated design capacity. Rated design capacity for this specification is defined as operation at 2500 kW for 22 hours and at 2750 kW for two hours in any 24-hour period.

Station batteries will deteriorate with time, but precipitous failure is extremely unlikely. The surveillance specified is that which has been demonstrated over the years to provide an indication of a cell becoming unserviceable long before it fails.

The equalizing charge, as recommended by the manufacturer, is vital to maintaining the ampere-hour capability of the battery. As a check upon the effectiveness of the equalizing charge, the battery should be loaded rather heavily and the voltage monitored as a function of time. Experience has shown that this test should be repeated at intervals to detect deterioration of cells.⁽³⁾⁽⁴⁾ If a cell has deteriorated or if a connection is loose, the voltage under load will drop excessively indicating replacement or maintenance.

References

- (1) FSAR Section 8.2
- (2) FSAR Table 8.2-4
- (3) AEC Information Letter ROE: 67-1, January 31, 1967.
- (4) FSAR Section 8.3.2



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-23
CAROLINA POWER & LIGHT COMPANY
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261

1.0 INTRODUCTION

By letter dated May 8, 1989, as supplemented September 20, 1989, and September 19, 1990, the Carolina Power & Light Company submitted a request for changes to the H. B. Robinson Steam Electric Plant, Unit No. 2, (HBR-2) Technical Specifications (TS). The amendment changes the TS to (1) add operability and associated surveillance requirements for battery chargers, (2) add provisions of an action statement and clarify surveillance requirements related to the station batteries, (3) add provisions for performance and service tests on station batteries, and (4) provide editorial clarifications in Sections 3.7 and 4.6.3.

2.0 EVALUATION

(1) Operability Requirement of Battery Chargers and Related Surveillance Requirements.

During the 12th refueling outage that was completed in early 1989, the licensee implemented a plant modification to install an additional set of battery chargers (chargers A-1 and B-1) which are redundant to the existing battery chargers (chargers A and B). Each of the two battery chargers (A-1 or A and B-1 or B) has the capacity to supply all normal DC loads and to maintain the corresponding safety-related station battery station (Battery A or B) fully charged. When a station battery is partially discharged, each battery charger is sized to recharge the battery within 24 hours while carrying its normal DC load.

The proposed operability and surveillance requirements would provide assurance that at least one battery charger associated with each station battery (i.e., battery charger A or A-1 for station battery A and battery charger B or B-1 for station battery B) is operable. The proposed TS provide adequate assurance for the station batteries to remain fully charged in anticipation of a loss-of-AC-power condition and are, therefore, acceptable.

(2) Provision of an Action Statement Related to the Operability Requirement of the Station Batteries and Battery Chargers.

In the event that one of the station batteries is inoperable, the proposed action statement (TS 3.7.2.f) would permit continued reactor operation for up to two hours before the inoperable battery is restored to operable status. If the inoperable battery can not be restored to operable status within the two hours, the reactor has to be at least in hot shutdown within 8 hours from the time the battery was first declared inoperable. The 2-hour battery unavailability time of the proposed TS is, in fact, the first two hours of the existing TS 8-hour shutdown requirement. This provision is consistent with the guidance provided in Regulatory Guide 1.93, "Availability of Electric Power Sources," (December 1974) which states that "If the available onsite d.c. supplies are one less than the LCO, power operation may continue for a period that should not exceed two hours. If the affected d.c. supply is restored within these two hours, unrestricted operation may be resumed".

The proposed action statements (TS 3.7.2.g and 3.7.2.h) for the battery chargers requires that at least one charger associated with each battery be operable. If both chargers for a battery are inoperable for over two hours, the reactor has to at least be placed in hot shutdown within 8 hours from the time the chargers are declared inoperable. These action statements are also consistent with the guidance in Regulatory Guide 1.93 and are acceptable.

(3) Battery Performance and Service Tests.

In its letter dated September 19, 1990, the licensee proposed to amend the Surveillance Requirements of the TS to subject the station batteries to a performance test at least once every five years (TS 4.6.3.5) and a service test at least once per 18 months (TS 4.6.3.6). The proposed service test is consistent with the guidance of Regulatory Guide 1.32, Revision 2, "Criteria for Safety-Related Electrical Power Systems for Nuclear Power Plants," concerning the performance of battery service tests. The proposed also stipulates that a battery performance test may be conducted in lieu of the service test. This stipulation is consistent with the industry standard IEEE 450-1980, Section 5.2, where it states that the performance test would "determine the battery capability," while the proposed service test would demonstrate the battery's ability to satisfy the design requirements battery duty cycle of the dc system. This proposed additional surveillance is acceptable.

(4) Editorial Clarifications and Other Miscellaneous Administrative Changes.

In TS 3.7.1.d.5, the correct terminology of "Governor Shutdown" is proposed instead of the existing "trip of fuel racks." Other editorial and administrative changes are proposed for the bases in TS 3.7 and 4.6. These changes are editorial and administrative in nature and do not affect safety.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment changed a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite; and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration, and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

The Commission made a proposed determination that this amendment involves no significant hazards consideration, which was published in the FEDERAL REGISTER (54 FR 46141) on November 1, 1989, and renoticed on November 14, 1990 (55 FR 47568), and consulted with the State of North Carolina. No public comments or requests for hearing were received, and the State of North Carolina did not have any comments.

The Staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) 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.

Dated: February 7, 1991

Principal Contributor: Ronnie Lo

AMENDMENT NO. 132 TO FACILITY OPERATING LICENSE NO. DPR-23 - ROBINSON,
UNIT NO. 2

Docket File

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