

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL: 50-261 H. B. Robinson Plant, Unit 2, Carolina Power and Light 05000261
 AUTH. NAME: UTLEY, E. E. AUTHOR AFFILIATION: Carolina Power & Light Co.
 RECIP. NAME: SCHWENCER, R. RECIPIENT AFFILIATION: Operating Reactors Branch 1

SUBJECT: Responds to NRC 790702 request for addl info re util 790124
 submittal pertaining to onsite emergency power sys submits
 proposed changes in Tech Specs. All emergency power sys are
 480 volts ac. LICENSE AMDT - DEGRADED GRID VOLTAGE.

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Carolina Power & Light Company

October 3, 1979

FILE: NG-3514(R)

SERIAL NO.: GD-79-2476

Office of Nuclear Reactor Regulation
Attention: Mr. Albert Schwencer, Chief
Operating Reactors Branch No. 1
United States Nuclear Regulatory Commission
Washington, D.C. 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261
LICENSE NO. DPR-23
REQUEST FOR LICENSE AMENDMENT - DEGRADED GRID VOLTAGE

Dear Mr. Schwencer:

Your letter of July 2, 1979, requested additional information concerning our submittal of January 24, 1979, pertaining to on-site Emergency Power Systems. The requested information is attached.

Your letter also requested that the Technical Specifications be changed to incorporate trip points, time delays and surveillance frequencies for the under-voltage protection circuitry. In accordance with the Code of Federal Regulations, Title 10, Part 50.90 and Part 2.101, the requested changes to the H. B. Robinson Unit No. 2 Technical Specifications are attached and submitted for approval. Changes are indicated by vertical lines in the right hand margin of the affected pages. In accordance with 10 CFR 170.12(c), we have determined that this revision constitutes one Class III Amendment. Accordingly, our check for \$4,000 is enclosed.

No Technical Specification change to incorporate Surveillance Requirements consistent with Model Specification 4.8.1.1.X.C as outlined in R. W. Reid's letter of June 3, 1977 is being submitted at this time. The indicated verification, as requested, could potentially cause damage to the emergency generator and related equipment. A method to verify the intent of Item C is being developed and the resulting specification will be submitted at least 60 days prior to implementation of this modification.

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

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w/CHACK
\$4,000.00
ADD:
BRUNMAN, E

Mr. Albert Schwencer

-2-

If you have any questions on this subject, please contact our staff.

Yours very truly,

M a M Daffin

for E. E. Utley
Executive Vice President
Power Supply & Customer Services

EEU/jcb

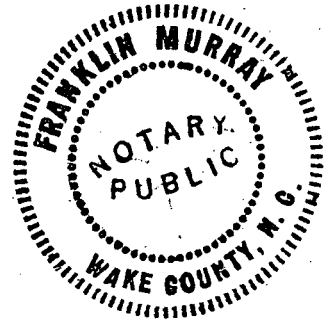
Enclosure

Sworn to and subscribed before me this 3rd day of October 1979.

Franklin Murray

Notary Public

My Commission expires October 4, 1981.



Question No. 1: Provide the voltage trip point on the 4160V side for the second level voltage protection monitors. It is stated as 86 percent on the 480 volt bus with a time delay of 10 seconds. A Technical Specification Change is required to incorporate this set point and time delay.

CP&L Response: There are no 4160V emergency power systems at H. B. Robinson Unit No. 2 (refer to Section 8 of the FSAR). All emergency power systems are 480 VAC. The modification proposed provides a second level of undervoltage protection for the 480V emergency power systems. The proposed Technical Specification Change to incorporate the trip point and time delay is enclosed; ref: Table 3.5-1, new page 3.5-7A.

Question No. 2: Describe the load shedding sequence showing the interaction of onsite power with the load shed feature. Refer to Position 2 (NRC Letter, "Safety Evaluation and Statement of Staff Positions Relative to Emergency Power Systems for Operating Reactors", dated June 2, 1977).

CP&L Response: The Safety Features equipment is protected by circuit breakers in conjunction with undervoltage trip protection circuitry as designed. The drop-out voltage for the controls on the circuit breakers is 297 volts, 62% of the nominal 480 volts. In order for the controls to pick up or energize, the minimum voltage required is 403 volts, 84% of nominal.

The present undervoltage instantaneous trip setting for both the normal AC feed breakers and the emergency diesel generator feed breakers is 394 volts, 82% of nominal. This value was chosen, when designed, to insure that no loads would be inadvertently lost from a normal short term transient (dropout at 297 volts) and also to preclude the possibility of loads being energized at a low voltage when demanded (rated minimum pickup of 403 volts). However, the Degraded Grid Voltage subject addresses the concern of continued operation at sustained voltages less than the minimum recommended for 460 volt motors (414 min., 506 max.). Thus, the trip value for the second level of undervoltage protection provided for in the proposed modification was selected to be 86% of nominal or 413 volts \pm 1 volt with a time delay of 10 seconds \pm 0.5 second to preclude spurious trips.

Therefore, the load shed sequence with the proposed modification installed is still the same as described in the FSAR, page 8.2-14 and 8.2-15 with one difference. Given the presence of undervoltage on the emergency busses E1 and/or E2, either an instantaneous trip (82% or less voltage present) or a degraded voltage trip (greater than 82% but less than or equal to 86% for at least 10 seconds) of the normal E1/E2 AC supply breakers will occur. This initiates load shed on E1/E2 and also provides the start signal for the diesel generator(s). Upon receipt of this start signal by the degraded grid voltage circuitry via closure of the diesel generator to E1/E2 feed breaker(s), the automatic load shed feature, as originally designed, will be bypassed (defeated) as long as the diesel generator supplies power to the bus. Upon return to normal AC supply, the automatic load shed feature will be automatically reinstated.

Question No. 3: It is required that the Technical Specifications include a test requirement to demonstrate the full functional operability and independence of the onsite power sources at least once every 18 months during shutdown. Refer to Position 3 (NRC Letter dated June 2, 1977). State the frequency of checks, calibration, functional tests, and operating surveillance modes. Provide proposed Technical Specifications addressing testing.

CP&L Response: The following enclosures constitute proposed Technical Specification changes which address the frequency of checks, calibrations and testing of the undervoltage protection circuitry:

Table 3.5-1 Engineered Safety Feature System Initiation
Instrument Setting Limits.

Table 3.5-3 Instrumentation Operating Conditions for
Engineered Safety Features.

Table 4.1-1 Minimum Frequencies for Checks, Calibrations
and Test of Instrument Channels.

As explained earlier, Surveillance Requirements consistent with Model Specification 4.8.1.1.X.C have not been included.

PROPOSED TECHNICAL SPECIFICATION CHANGES

Table 3.5-1 (Continued)

ENGINEERED SAFETY FEATURE SYSTEM INITIATION INSTRUMENT SETTING LIMITS

<u>NO.</u>	<u>FUNCTIONAL UNIT</u>	<u>CHANNEL ACTION</u>	<u>SETTING LIMIT</u>
6	Loss of Power		
a.	480V Emerg. Bus Undervoltage (Loss of Voltage)	Trip Breaker	394 Volts \pm 1 volt Instantaneous
b.	480V Emerg. Bus Undervoltage (Degraded Voltage)	Trip Breaker	413 Volts \pm 1 volt 10.0 Second Delay \pm 0.5 s

Table 3.5-3 (Continued)

<u>NO.</u>	<u>FUNCTIONAL UNIT</u>	<u>1</u> MINIMUM OPERABLE CHANNELS	<u>2</u> MINIMUM DEGREE OF REDUNDANCY	<u>3</u> OPERATOR ACTION IF CONDITIONS OF COLUMN 1 OR 2 CANNOT BE MET
3	Loss of Power			
a.	480V Emerg. Bus Undervoltage (Loss of Voltage)	2/Bus	1/Bus	Maintain Hot Shutdown.
b.	480V Emerg. Bus Undervoltage (Degraded Voltage)	2/Bus	1/Bus	Maintain Hot Shutdown.

Table 4.1-1 (Continued)

<u>NO.</u>	<u>CHANNEL DESCRIPTION</u>	<u>CHECK</u>	<u>CALIBRATE</u>	<u>TEST</u>	<u>REMARKS</u>
32	Loss of Power				
a.	480V Emerg. Bus Undervoltage (Loss of Voltage)	D	R	M(1)	(1) During hot shutdown and power operations. When periods of reactor cold shutdown and refueling extend this interval beyond one month, the test shall be performed prior to startup.
b.	480V Emerg. Bus Undervoltage (Degraded Voltage)	D	R	M(1)	