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ACCESSION NBR:9109240330 DOC.DATE: 91/09/18 NOTARIZED: NO DOCKET #
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SUBJECT: Provides addl info re util emergency license amend request dtd 910918.Encl 2 to ltr provides correction to typographical error made in Encl 5 of emergency amend request.

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SEP 18 1991

SERIAL: NLS-91-248

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
ADDITIONAL INFORMATION REGARDING EMERGENCY LICENSE AMENDMENT REQUEST

Gentlemen:

Enclosure 1 to this letter provides additional information concerning Carolina Power & Light Company's emergency license amendment request dated September 18, 1991. The information was discussed with the NRC during a September 18, 1991 conference call.

Enclosure 2 to this letter provides a correction to a typographical error made in Enclosure 5 of the emergency amendment request.

Enclosure 3 to this letter provides a revised, proposed Technical Specification page, as discussed with the NRC.

Yours very truly,

R A Watson

R. A. Watson

R. A. Watson, 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

JSK/jbw (1305RNP)

Enclosures



cc: Mr. S. D. Ebneter
Mr. L. Garner (NRC-HBR)
Mr. R. Lo

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ENCLOSURE 1

Question: Describe the consequences of the failure of each channel of Emergency Bus Loss of Voltage protection.

Answer: The safety-related electrical distribution system consists of two busses (trains), E-1 and E-2. Each train is fully redundant and consists of two channels within each train (for the purpose of this discussion, Channels A and B). In that the trains are redundant, the failure of each channel on one train will be considered with the consequences being analogous if the failure had occurred on the other train. Note that this discussion assumes a complete channel failure regardless of which functions/components fully meet Technical Specification requirements and which functions do not. Also, the assumed failure of a complete channel is the only failure considered; the other channel in that train and both channels in the other train are assumed to fully function.

With the assumed complete failure of Channel A on bus (Train) E-1, the following consequences will result:

- The Emergency Diesel Generator will not start.
- The blocking of the normal automatic closing features for both the 'A' motor-driven AFW pump breaker and the 'B' CCW pump breaker will not function.
- The Safety Injection (SI) Sequencer Block Permissive will not function.
- The Normal Supply Breaker will open.
- The loads powered from bus E-1 at the time of initiation of the loss of voltage will be shed with the exception of MCC-5 (per design).

The overall consequences of the failure of Channel A will be bus E-1 separated from its normal (off-site) supply and its diesel generator not running, i.e., a failed bus. Note that this failure has no effect on bus E-2, and it will function as designed to support a safe plant shutdown in accordance with UFSAR accident analysis.

With the assumed complete failure of Channel B on bus (Train) E-1, the following consequences will result:

- The SI Sequencer Block Permissive will not function.
- The diesel generator will start.
- The normal supply breaker will open.
- The loads powered from bus E-1 at the time of initiation of the loss of voltage will be shed from the bus with the exception of MCC-5 (per design).
- The blocking of the normal automatic closing features for the 'A' motor-driven AFW pump breaker and the 'B' CCW pump breaker will function.

The overall consequences of the failure of Channel B will be the bus separated from its normal (off-site) supply; however, SI loads may sequence onto the bus before the diesel output breaker closes. When the diesel output breaker does close, the diesel output breaker may reopen on overcurrent, resulting in a failed bus. Note that this failure has no effect on bus E-2, and it will function as designed to support a safe plant shutdown in accordance with UFSAR accident analysis.

To assess worst case consequences, it has been assumed that with a Channel A failure, there is not an SI signal present; and with a Channel B failure, there is an SI signal present. The effect of no SI signal present with a Channel A failure is that no other diesel start signal exists. The effect of having an SI signal present with a Channel B failure is the sequencing of SI loads onto the bus before the diesel generator output breaker closes as described above.

Again, the consequences of a Channel A or Channel B failure on bus E-2 is analogous to a Channel A or Channel B failure on bus E-1, respectively; i.e., one bus failed and the other available to support normal plant shutdown.

ENCLOSURE 2

ENCLOSURE 5 TO NLS-91-245

Response to NRC request for additional information during September 17, 1991, telephone conversation.

Item 1.: Provide a detailed description of the problem on a channel basis.

The problem is twofold. The first problem results in the inability of the current test method to differentiate between which channel(s) actually initiates the stripping function. Each Emergency Bus has two channels which are redundant for the stripping function. The output contacts for each channel are combined in a parallel configuration in the breaker trip logic. Since the test acceptance criteria was to observe the opening of a breaker, there was no way to determine which particular channel initiated the shed. This could result in a failed slave relay in one channel going undetected. Analysis of our test results limit this to two pairs of redundant relays. We do know that at least one of the relays in each pair was energized. These relays initiate tripping for the following breakers:

| Bus E1 | | Bus E2 | |
|---|---|---|---|
| (Relays 271X2/E1 & 272X2/E1) | | (Relays 271X2/E2 & 272X2/E2) | |
| SST-2A to 480V Bus #1 | * | SST-2C to 480V Bus #3 | * |
| 480V Bus #1 Main | * | 480V Bus #3 Main | * |
| Bus E1 Normal Supply Breaker | | Charging Pump "C" | |
| CV Spray Pump "A" | | SI Pump "C" | |
| HVH-1 | | SW Pump "C" | * |
| HVH-2 | * | HVH 4 | * |
| (Relays 271X3/E1 & 272X3/E1) | | (Relays 271X3/E2 & 272X3/E2) | |
| AFW Pump "A" | | AFW Pump "B" | |
| SW Pump "A" | * | HVH-3 | * |
| SW Pump "B" | | SW Pump "D" | |
| Charging Pump "B" | | CV Spray Pump "B" | |
| SI Pump "A" | | RHR Pump "B" | |
| RHR Pump "A" | | | |

(* These breakers are verified to shed. In addition; HVH-1, SW Pump "B", and SW Pump "D" were verified to shed in earlier refuelings.)

Each channel also contains three sets of redundant contacts used in the Safeguards Sequencer Logic to sense voltage on the Emergency Bus. The first set senses voltage on the Emergency Bus to provide a permissive for Safety Injection load sequencing. The second set senses a loss of voltage on the Emergency Bus to provide a permissive for the Blackout load sequencing. The third set senses a loss of voltage on the Emergency Bus to provide an inhibit of the Emergency Diesel Generator Output Breaker closing to allow time for load shedding. These functions were verified.

Only one channel contains a start contact for the Diesel Generator associated with its bus. This function was successfully tested.

The second problem results from not all loads being powered from the Emergency Busses when the stripping function was initiated. Since the testing method for verifying the stripping function was to observe the breaker change state, those breakers which were open at the beginning of the test were not validated to shed. The following breakers were not verified to shed:

| Bus E1 | | Bus E2 | |
|---|---|---|---|
| Bus E1 Normal Supply | | Charging Pump "C" | |
| CV Spray Pump "A" | | SI Pump "C" | |
| HVH-1 | * | AFW Pump "B" | |
| AFW Pump "A" | | SW Pump "D" | * |
| SW Pump "B" | * | CV Spray Pump "B" | |
| Charging Pump "B" | | RHR Pump "B" | |
| SI Pump "A" | | CCW Pump "C" | |
| RHR Pump "A" | | Bus E2 Normal Supply | |
| Bus E1 to SI Pump "B" | | Bus E2 to SI Pump "B" | |
| CCW Pump "B" | | SI Pump "B" | |

(* These loads have been verified to shed during earlier refuelings)

Item 2.: Provide a description of each function which is not redundant within the channels.

Two functions are not redundant between channels. The first is the "Loss of Voltage" start for the Emergency Diesel Generators. This function was verified. The second function is the blocking of the normal automatic closing features for both the AFW Pump and the CCW Pump breakers should an undervoltage condition exist on the Emergency Bus. This second function also blocks the normal automatic starting of the Charging Pump if a "Safety Injection" signal and a "Loss of Voltage" signal are present. The undervoltage slave relay which initiates this function was verified to have actuated.

Item 3.: Why was the load shedding function not completely tested?

The surveillance Technical Specification for load shedding is not clearly written. The phrase, "particular vital equipment," has been interpreted to mean equipment which was in service at the time of the test. Thus the load shed function was assumed to have been verified even though every individual load had not been verified. Each Undervoltage Relay is calibrated by removing the relays and bench calibrating. This was assumed to fulfill the calibration requirement even though the remainder of the channel logic was not verified. The discovery of this fact is the initiator of this problem.

Item 4.: What is the planned resolution?

We will prepare tests which validate the full functionality of the "Loss of Voltage" channels. This will include testing of the shedding features.

During the time the waiver is in effect, the actions to be taken are described in Enclosure 4, Item 3.

Item 5.: Describe the "Start Circuitry" for the Diesel Generators.

Each Diesel Generator starts upon a manual start, or a Safety Injection Signal, or a "Loss of Voltage" signal from its respective Emergency Bus. As noted above under Item 2, the "Loss of Voltage" start signal is derived from only one channel of the "Loss of Voltage" logic. All the functions associated with the automatic starting of the Emergency Diesel Generators were successfully tested. The following functions associated with the Emergency Diesel Generator were verified:

1) Safety Injection initiated start,
2) Undervoltage on the Emergency Bus start, and
3) Combination of Safety Injection and Undervoltage start.