



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA STREET, N.W., SUITE 2900  
ATLANTA, GEORGIA 30323

Report No.: 50-261/87-19

Licensee: Carolina Power and Light Company  
P. O. Box 1551  
Raleigh, NC 27602

Docket No.: 50-261

License No.: DPR-23

Facility Name: H. B. Robinson

Inspection Conducted: June 15-19, 1987

Inspector: N. Merriweather  
N. Merriweather

7-20-87  
Date Signed

Approved by: T. E. Conlon  
T. E. Conlon, Section Chief  
Engineering Branch  
Division of Reactor Safety

7-20-87  
Date Signed

SUMMARY

Scope: Special unannounced inspection to follow-up on licensee's corrective actions for previously identified EQ deficiencies, review activities associated with environmental qualification of Kerite and Continental Cables and closeout of previously identified open items.

Results: No violations were identified.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*G. Beatty, Vice President, RNPD
- \*J. Curley, Acting General Manager (Director of Regulatory Compliance)
- \*A. Wallace, Manager, Technical Support
- \*D. Sayre, Acting Director, Regulatory Compliance
- \*J. Young, Director, QA/QC
- \*A. Shepherd, Technician, Regulatory Compliance
- J. Buckner, Field Coordinator
- M. Heath, Project Engineer
- B. Murphy, Senior Maintenance Engineer

#### NRC Resident Inspectors

- H. Krug, Senior Resident Inspector
- R. Latta, Resident Inspector

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on June 19, 1987, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The following new item was identified during this inspection.

Unresolved Item 50-261/87-19-01, EQ of Penetration Splices, paragraph 6.

The licensee did identify some material as proprietary during this inspection, but the material is not included in this inspection report.

### 3. Licensee Action on Previous Enforcement Matters

(Closed) Unresolved Item 50-261/84-36-02, Complete Evaluation of Westinghouse (DB-50) Breaker Recommendations

During the initial inspection of the licensee's program for Generic Letter 83-28 it was determined that Westinghouse Technical Bulletin NSD-TB-83-02, Revision 1, Addendum 1 had not been reviewed by the licensee for inclusion in Reactor Trip Breaker Maintenance Procedure MST-012. The inspector had a concern regarding the timeliness of the licensee's review of this Bulletin. Subsequent to the inspection, the licensee completed the review of the above bulletin and made necessary revisions to Maintenance Procedure MST-012 prior to plant restart from the outage. Later, further guidance on reactor trip breaker maintenance was delineated in a letter

from NRR dated January 20, 1987 which transmitted the Safety Evaluation for Items 4.2.1 and 4.2.3 of Generic Letter 83-28 concerning preventative maintenance and surveillance program for Reactor Trip Breakers. This letter identified 20 maintenance checks that the licensee committed to incorporate into their breaker maintenance procedure. A review of procedure MST-012, "Inspection and Testing of Reactor Trip and Bypass Breakers," Revision 7 (dated May 11, 1987), confirmed that these items were adequately addressed in the procedure. The inspector had no other concerns in this area.

#### 4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. One unresolved item identified during this inspection is discussed in paragraph six.

#### 5. Background

During the week of May 4-8, 1987, an NRC inspection (Report 50-261/87-10) was performed at the H. B. Robinson Unit 2 to review the licensee's implementation of their program to meet the requirements of 10 CFR 50.49, (Electric Equipment Environmental Qualification Program). During the inspection a concern was raised regarding the adequacy of documentation for qualification of safety-related cable in containment. Answers to questions, during the inspection, revealed: (1) that the licensee did not know which type of cable was used for specific EQ components; (2) did not believe that procedural control of cable installation during plant construction could be relied upon to identify cables; (3) had not performed plant walkdowns or modification package reviews to address the possible use of the cable types; and had not removed any cable samples for analysis.

In the following days, several conference calls and one meeting in the NRC Region II Office were held to discuss the progress of licensee efforts to provide additional information strengthening the qualification documentation of this cable. The licensee was requested to provide a written Justification for Continued Operation (JCO) prior to criticality to support operation during the time needed to provide further information regarding the qualification of Continental cable. The licensee submitted a justification for continued operation in a letter to NRC dated June 1, 1987, (letter Nos. RNP/87-2390). In this letter the licensee states that they believe the Continental cable is qualified; however, to support this position, they will perform an expanded data search. The licensee

indicated that the expanded search will take up to three months to complete. The licensee further states that should the additional data not prove conclusive, further efforts involving testing and analysis of a sample of the Continental cable removed from containment will be performed. The licensee committed to have all necessary actions completed within six months. The NRC accepted this JCO in a letter to the licensee dated June 4, 1987, with the requirement that all actions be completed within six months after the plant exceeds two percent power.

## 6. Findings

The purpose of this inspection was to review samples of documentation which developed the basis for the JCO (regarding Continental cable) dated June 1, 1987, and to review samples of documentation associated with the rework and or repair of EQ items during the outage. Since the last inspection the licensee has performed several actions in an effort to be in compliance with the requirements of 10 CFR 50.49. These actions include:

- a. Development of JCO for Continental cable
- b. Walkdown of all EQ circuits inside containment and development of an "EQ Cable Correlation Sheet"
- c. Issue a purchase requisition for Continental Wire and Cable Company to research historical records for qualification
- d. Inspect and replace Raychem splices
- e. Issue and complete Special Procedure SP-775 which replaced penetration splices, Crouse Hinds connectors and some questionable cable
- f. Issue and complete Special Procedure SP-759 which replaced additional Raychem splices at penetrations and field devices
- g. Issue and complete Modification M924 which installed cable entrance seals in ASCO Solenoid Valves and Rosemount 1153A transmitters.

The inspector reviewed the EQ records relating to Continental Cable and concluded that this information provided reasonable assurance that cable in-service inside containment, is the cable purchased from Continental Cable Company. Samples of cables removed from containment were physically inspected and compared to the description of items Nos. five and six of Ebasco Specification CX-67 dated May 26, 1969. The only discrepancy was that the Ebasco Specification did not address the color coded glass braid over the conductor insulation. The cable and conduit list, a design document, specified cable type and routing during plant construction. However, this list is not a QA record of what was installed in the plant. Therefore, the physical walkdowns performed by the licensee were the first documented evidence of what type of cables were actually used on EQ

circuits. The results of this review identified 22 cables that could not be identified as to what manufacturer supplied the cable. A review of the cable and conduit list, procedures and modification packages left the cable identification as indeterminate. The licensee subsequently replaced all questionable cables. Samples of these cables are also available for possible EQ testing.

The procedure which replaced these questionable cables was Special Procedure SP-775. This procedure also replaced the penetration pigtail splices and the Crouse Hinds connectors with Raychem splices. Review of this procedure revealed the following concerns:

- a. The penetration pigtail splice configuration did not match the EQ Generic File for how the pigtail cable was tested. The licensee did not replace the outer jacket at the splice. This also raises a concern that moisture can possibly migrate through the cable to the pigtail to field cable butt splice.
- b. The pigtail to field cable splices were not consistent with current EQ files (i.e., Generic File 13.0, Amp Butt Splice Connector). Current EQ files support qualification of Amp insulated butt splices. However, the splices made on penetration pigtail splices used Thomas & Betts (T&B) insulated butt splices. Furthermore, the outer Raychem sleeve had a two inch seal length and not the three inches specified in the EQ file.

The inspector questioned the licensee regarding the qualification of the above configurations. In regard to the first item, the licensee was conducting an engineering review to determine the acceptability of the exposed conductors for continued operation. This review would also address the effects of moisture intrusion on cable butt splices.

In regard to the second item, the licensee informed the inspector that adequate documentation is available from Commonwealth Edison Company Test Reports and T&B Test reports which demonstrate qualification of this configuration. It appears that this is only a documentation deficiency. The licensee committed to have incorporated into the EQ files in accordance with their schedule for implementing Regulatory Guide 1.97 items.

Since EQ documentation files did not support qualification for penetration pigtail splices and pigtail to field cable splices and there is a question concerning compliance with 10 CFR 50.49, this is an Unresolved Item, EQ of Penetration Splices (50-261/87-19-01).

The inspector concluded by review of work sheets and interviews with licensee representatives that the licensee is in full compliance with their commitments for resolving all EQ concerns.

7. Inspector Identified Items (IFI)

(Closed) IFI 50-261/84-36-06, Verify that the Shunt Trip Coil is seismically qualified.

A Westinghouse Owners Group (WOG) Letter No. WOG-85-120, dated February 13, 1985 transmits to the licensee copies of reports which demonstrate seismic qualification for the shunt trip attachment on Westinghouse Model DB-50 Reactor Trip Breakers. The WOG reports were reviewed by the licensee and incorporated into Modification Package 799 by Design Change Notice No. 799-9, dated March 11, 1985.

This item is closed.