

ENCLOSURE 1

SAFETY EVALUATION FOR
GENERIC LETTER 83-28, ITEMS 3.1.1,
3.1.2, 3.2.1, 3.2.2, 4.1 AND 4.5.1
H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261

I. INTRODUCTION

In February 1983, the Salem Nuclear Power Station experienced two failures of the reactor trip system upon the receipt of trip signals. These failures were attributed to Westinghouse - Type DB-50 reactor trip system (RTS) circuit breakers. The failures at Salem on February 22 and 25, 1983, were believed to have been caused by a binding action within the undervoltage trip attachment (UVTA) located inside the breaker cubicle. Due to problems with the circuit breakers at Salem and at other plants, NRC issued Generic Letter (GL) 83-28, Required Actions Based on Generic Implications of Salem Anticipated Transient Without Scram (ATWS) Events, dated July 8, 1983. This letter described intermediate-term actions to be taken by licensees and applicants as a result of the Salem anticipated transient without scram events. These actions were developed by the staff based on information contained in NUREG-1000, Generic Implications of ATWS Events at the Salem Nuclear Power Plant. Actions to be performed included development of programs to provide for post-trip review, classification of equipment, vendor interface, post-maintenance testing, and RTS reliability improvements. The Generic Letter stated that for Action Items 3.1.1, 3.1.2, 3.2.1, 3.2.2, 4.1, and 4.5.1 NRC Regional offices would perform a post-implementation review and issue Safety Evaluations. This report is the Safety Evaluation of Carolina Power and Light Company submittal dated November 7, 1983, to GL 83-28 for H. B. Robinson Steam Electric Plant, Unit 2 (HBR2). An NRC inspection was also conducted at the Robinson facility during October 1-5, 1984, to review the licensee's current program, planned program improvements, and implementation of present procedures associated with post-trip review, equipment classification, vendor interface, post-maintenance testing, and reactor trip system reliability. The details of the inspection findings are discussed in Inspection Report No. 50-261/84-36.

II. REVIEW GUIDELINES

The licensee's responses were evaluated for compliance to the staff's positions delineated in GL 83-28 for Action Items 3.1.1, 3.1.2, 3.2.1, 3.2.2, 4.1 and 4.5.1. The requirements of the above action items, as described in the Generic Letter, are paraphrased below:

3.1 Post-Maintenance Testing (Reactor Trip System Components)

Position

The following actions are applicable to post-maintenance testing:

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1. Licensees and applicants shall submit the results of their review of test and maintenance procedures and Technical Specifications to assure that post-maintenance operability testing of safety-related components in the reactor trip system is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.
2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications, where required.

3.2 Post-Maintenance Testing (All Other Safety-Related Components)

Position

The following actions are applicable to post-maintenance testing:

1. Licensees and applicants shall submit a report documenting the extending of test and maintenance procedures and Technical Specifications review to assure that post-maintenance operability testing of all safety-related equipment is required to be conducted and that the testing demonstrates that the equipment is capable of performing its safety functions before being returned to service.
2. Licensees and applicants shall submit the results of their check of vendor and engineering recommendations to ensure that any appropriate test guidance is included in the test and maintenance procedures or the Technical Specifications where required.

4.1 Reactor Trip System Reliability (Vendor-Related Modifications)

Position

All vendor-recommended reactor trip breaker modifications shall be reviewed to verify that either: (1) each modification has, in fact, been implemented; or (2) a written evaluation of the technical reasons for not implementing a modification exists.

For example, the modifications recommended by Westinghouse (W) in NCD-Elec-18 for the DB-50 breakers and a March 31, 1983 letter for the DS-416 breakers shall be implemented or a justification for not implementing shall be made available. Modifications not previously made shall be incorporated or a written evaluation shall be provided.

4.5 Reactor Trip System Reliability (System Functional Testing)

Position

On-line functional testing of the reactor trip system, including independent testing of the diverse trip features, shall be performed on all plants.

1. The diverse trip features to be tested include the breaker under-voltage and shunt trip features on Westinghouse, Babcock and Wilcox (B&W) and Combustion Engineering (CE) plants; the circuitry used for power interruption with the silicon controlled rectifiers on B&W plants; and the scram pilot valve and backup scram valves (including all initiating circuitry) on General Electric (GE) plants.

III. EVALUATION AND CONCLUSION

By letter dated November 7, 1983, Carolina Power and Light Company, the licensee of H. B. Robinson Steam Electric Plant, provided information regarding their compliance to Sections 3.1, 3.2, 4.1, and 4.5 of GL 83-28. We have evaluated the licensee's response against the NRC positions described in Section II above for completeness and adequacy. We concluded that the licensee's responses to Action Items 3.1.1, 3.1.2, 3.2.1, 3.2.2, 4.1, and 4.5.1 are acceptable and meet the intent of GL 83-28.

Delineated below are the results of our evaluation and a brief summary of the licensee's responses:

A. Item 3.1.1, Review of Test and Maintenance Procedures and Technical Specifications (Reactor Trip System Components)

The licensee stated in their response dated November 7, 1983, that the post-maintenance operability testing of safety-related components in the reactor trip system are performed as described in our response to Sections 2.1 and 3.2 of the Generic Letter. Section 2.1 states that the vendor interface program for all safety-related equipment is described in Section 2.2.2. Section 2.2.2 describes the licensee's existing vendor interface program and planned improvements. Section 3.2.1 describes the licensee's maintenance program. In Section 3.2.1 the licensee made the following statements:

Prior to maintenance on equipment, a Work Request and Authorization Form must be completed by appropriate personnel. This form provides a description of the work to be done and identifies if the equipment is Q-list or non Q-list. If the equipment is Q-list, the form is reviewed by Quality Assurance (QA) personnel, prior to being issued to maintenance, to ensure appropriate requirements are specified, QA hold points are identified, and other reviews with the QA program are met. In addition, the Work

Request is reviewed by QA after the work is completed. Once the Work Request is approved, operations issues a Local Clearance/Test Request Form (LCTR) to ensure that appropriate actions are taken to remove and reinstate equipment to service for all plant equipment with a few exceptions for secondary plant equipment. Prior to equipment, whose operability is described, in Technical Specification Section 3, being returned to service, the LCTR requires an Operation Work Procedure (OWP) to be completed. The OWP provides for the appropriate post maintenance testing to assure that the equipment meets its safety function prior to its return to service. CP&L believes that the above procedural controls provide reasonable assurance that safety-related equipment is capable of performing its safety function before being returned to service.

We have reviewed the above sections of the licensee's response and concluded that their response for this action item is acceptable. The licensee indicated in their response that prior to equipment, whose operability is described in Technical Specification Section 3, being returned to service, the LCTR requires an Operation Work Procedure (OWP) be completed. This OWP provides for the appropriate post-maintenance testing to assure that the equipment meets its safety function.

B. Item 3.1.2, Check of Vendor and Engineering Recommendations for Testing and Maintenance (Reactor Trip System Components)

The licensee's response to this item is acceptable and meets the intent of GL 83-28. The licensee indicated in their response that they reviewed past history records on the reactor trip breakers and have incorporated appropriate Westinghouse (W) technical information into the maintenance and test procedures for the reactor trip breakers. The licensee also stated that they were currently reviewing all other W Technical Bulletins on Nuclear Steam Supply System components to verify that the recommendations have been reviewed and implemented as appropriate.

C. Item 3.2.1, Review of Test and Maintenance Procedures and Technical Specifications (All Other Safety-Related Components)

We have reviewed the above sections of the licensee's response in conjunction with the review for this item and concluded that their response for this action item is acceptable. The licensee indicated in their response that prior to equipment, whose operability is described in Technical Specification Section 3, being returned to service, their program requires an Operation Work Procedure (OWP) be completed. This OWP provides for the appropriate post-maintenance testing to assure that the equipment meets its safety function.

D. Item 3.2.2, Check of Vendor and Engineering Recommendations for Testing and Maintenance (All Other Safety-Related Components)

The licensee's response to this item is acceptable and meets the intent of GL 83-28. CP&L stated in their response dated November 7, 1983, that they were phasing in a Vendor Interface Program to provide adequate assurance that vendor information for safety-related equipment is appropriately incorporated in the plant instructions and procedures. At the time of the response, the licensee's vendor interface program included the following:

- Procedural processing of vendor recommendations
- Procedural control of technical manuals
- Control of the vendor manuals

The licensee stated that vendor technical manuals are used as a source of reference material in preparing plant maintenance procedures, thereby, allowing vendor input to be evaluated before use and integrated with site specific conditions and experience.

The licensee also indicated in the response that all W Technical Bulletins applicable to H. B. Robinson Unit 2 have been received by CP&L. The licensee further stated that they have reviewed and acted upon, all W Technical Bulletins on Reactor Trip Breakers and they were currently reviewing all other W Technical Bulletins to verify that the recommendations have been reviewed and implemented as appropriate. However, the licensee did not specifically state that a review was performed of non Westinghouse vendor and engineering recommendations.

The licensee has established a vendor interface program with Westinghouse to periodically provide an updated list of Technical Bulletins (TBs) which the licensee will use to confirm that all TB's have been received. Furthermore, other safety-related vendors will be addressed through the INPO Nuclear Utilities Task Action Committee (NUTAC) on GL 83-28. This NUTAC is currently formulating recommendations for an industry wide vendor information program for safety-related equipment.

Based on the above, we find this response to be acceptable.

E. Item 4.1, Reactor Trip System Reliability (Vendor-Related Modifications)

The licensee's response to this item is acceptable and meets the intent of GL 83-28. The licensee has performed a review of W recommendations on DB-50 breakers and verified that each vendor recommendation has been implemented. The scope of this review included: Technical Bulletins 74-1; 83-02; 83-03, and Data Letter 74-2. The licensee also confirmed that the undervoltage trip attachments installed on the trip and bypass reactor trip breakers in October 1971, met the design requirements of Westinghouse Modification NCD-Elec-18.

F. Item 4.5.1, Reactor Trip System Reliability (System Functional Testing)

It was confirmed during NRC inspection 50-261/84-36 that the licensee performs on-line and zero-power testing of the reactor protection system. The on-line testing is performed monthly. This test includes requirements which verifies operability of the logic circuit from the reactor protection rack through the undervoltage trip attachment on the reactor trip breaker. At the time of the inspection, the shunt modification had not been installed on the reactor trip breaker; however, the licensee committed to complete the shunt modification prior to restart after the Steam Generator Replacement Outage. During the inspection the licensee informed the inspectors that the shunt modification was scheduled to be complete in October 1984. It is concluded from the licensee's response and subsequent inspection findings that once the shunt modification is completed the licensee's periodic test program will implement procedures to independently test at power both the undervoltage trip attachment and shunt trip device on the reactor trip breakers. Based on the above, we consider the licensee's response acceptable.

G. Conclusion

Based on our review and inspection, we conclude that the licensee's response to items 3.1.1, 3.1.2, 3.2.1, 3.2.2, 4.1, and 4.5.1 are acceptable and meet the intent of GL 83-28.