

APR 7 1987

Docket No.: 50-261

MEMORANDUM FOR: Thomas M. Novak, Acting Director
Division of PWR Licensing-A

FROM: Charles E. Rossi, Assistant Director
Division of PWR Licensing-A

SUBJECT: EVALUATION OF BACKFIT CLAIM, H.B. ROBINSON, UNIT 2
CONFORMANCE WITH NUREG-0737, ITEM II.D.1

The enclosed Staff Evaluation of Backfit Claim is submitted in accordance with the instructions and procedures contained in NRR Office Letter No. 52, Section III.C.2, dated August 19, 1986.

Original signed by

Charles E. Rossi, Assistant Director
Division of PWR Licensing-A

Attachment: As stated

- cc: L. Rubenstein
- R. Ballard
- G. Requa
- L. Marsh
- R. Bosnak
- J. Clifford
- P.T. Kuo
- F. Cherny
- G. Bagchi
- G. Hammer
- A. Masciantonio
- C. Nalezny, EG&G (Rockville)

Contact: A. Masciantonio
X-24911

- Distribution:
- Docket File
- PAEB Reading File
- PAEB Plant File
- AD Reading File

OFC	:PAER	:PAEB	:PAEB	:PD-2	:PD-2	:AD/PLA
NAME	Masciantonio	GBagchi	RBallard	GRequa	LRubenstein	CERossi
DATE	:4/1/87	:4/1/87	:4/6/87	:4/7/87	:4/7/87	:4/7/87

OFFICIAL RECORD COPY

8704090210 870407
PDR ADOCK 05000261
P PDR

STAFF EVALUATION OF BACKFIT CLAIM
H.B. ROBINSON, UNIT 2
CONFORMANCE WITH NUREG-0737, ITEM II.D.1

By letter dated March 17, 1987 (copy Attached), Carolina Power and Light Company (CP&L), the license holder for H. B. Robinson, Unit 2, appealed to reclassify as a backfit an NRC staff request included in the H. B. Robinson, Unit 2 Safety Evaluation Report (SER) on NUREG-0737, Item II.D.1, "Performance Testing of Relief and Safety Valves." The SER concluded that CP&L has provided an acceptable response to the requirements of NUREG-0737, Item II.D.1; however, in order to demonstrate continued operability of the safety valves, the licensee must have procedures for inspection and maintenance of the valves after each lift involving loop seal or water discharge.

NUREG-0737 was issued in October of 1980. Item II.D.1 of this NUREG states, in part,

"Licensees and applicants shall conduct testing to qualify the reactor coolant system relief and safety valves under expected operating conditions for design-basis transients and accidents...The testing should demonstrate that the valves will open and reclose under the expected flow conditions."

The post-TMI implementation requirements approved by the Commission and incorporated in NUREG-0737 were addressed to "All LICENSEES OF OPERATING PLANTS AND APPLICANTS FOR OPERATING LICENSES AND HOLDERS OF CONSTRUCTION PERMITS".

CP&L, through a PWR Owners Group and the Electric Power Research Institute (EPRI), participated in the development and execution of a test program to demonstrate operability of prototype safety and relief valves. Specifically, EPRI testing of Crosby safety valves was used to qualify the Robinson, Unit 2 valves. The test results showed repeatedly that the safety valve performed acceptably on the first actuation but on subsequent actuation, the valve chattered and had to be manually opened to terminate the test. Galled surfaces

and damaged internal parts were found during inspection and the damaged parts were refurbished or replaced before the next test started. The valve performed well on the initial test after each repair, but experienced closing chatter in the subsequent test. The EPRI results thus demonstrated that after a Crosby valve lift involving water discharge the valve would no longer meet the objective of NUREG-0737 during subsequent operations without corrective actions.

Requiring licensees and applicants to address the valve problem which occurred in the testing performed to meet NUREG-0737, Item II.D.1 is not a backfit since the requirement was to ensure valve operability "under expected operating conditions." This would include operation after the valve has lifted the first time. The SER on this item issued for H. B. Robinson, Unit 2 requested CP&L to have a procedure for inspection and maintenance of the safety valves after actuation involving the discharge of water. In retrospect, the staff may have been too prescriptive in its request. CP&L may, as in the case of any staff request or requirement not specifically delineated in a rule, choose to propose alternate methods by which the operability requirements will be ensured.

It should be noted that inspection of the Crosby safety valves after actuation involving the discharge of water was first used as a method to ensure continued valve operation during the review of Item II.D.1 on Kewaunee. In a letter dated March 23, 1984, the Kewaunee licensee proposed this procedure which was subsequently approved by the staff.

Subject to your concurrence, the Engineering Branch will work with the H. B. Robinson, Unit 2 project manager to inform the licensee that requiring licensees and applicants to demonstrate the method by which valve operability will be ensured following a valve lift is not a backfit. The Engineering Branch will also review the licensee's proposals for ensuring the operability of the valves to determine their technical adequacy. The staff will not be prescriptive in how the operability will be ensured. However, the staff will want a clear statement from the licensee on his criteria for ensuring operability after a valve lift.

Background



Carolina Power & Light Company

MAR 17 1987

SERIAL: NLS-87-053
10CFR50.109

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
APPEAL OF BACKFIT REQUIREMENT

Gentlemen:

Carolina Power & Light Company (CP&L), pursuant to the provision of 10CFR50.109, hereby appeals to reclassify as a backfit an NRC staff request received in a letter dated February 11, 1987. The purpose of the letter was to transmit to CP&L the Safety Evaluation Report (SER) for H. B. Robinson Steam Electric Plant, Unit No. 2, on NUREG-0737, Item II.D.1, *Performance Testing of Relief and Safety Valves*. The SER concluded that CP&L meets the requirements of NUREG-0737, Item II.D.1; however, approval is contingent upon CP&L making a commitment to a new plant procedure which falls outside the scope of NUREG-0737, Item II.D.1. Therefore, CP&L believes that the staff request constitutes a backfit as defined in 10CFR50.109(a)(1).

The objective of NUREG-0737, Item II.D.1, is to demonstrate that the reactor coolant system relief and safety valves are capable of performing their intended function under expected operating conditions for design basis transients and accidents. Carolina Power & Light Company demonstrated this operability requirement through participation in an EPRI test program for performance testing of PWR safety and relief valves. The test program results and CP&L's evaluation of the applicability of the test results to H. B. Robinson Plant demonstrated that the safety valves meet the NRC requirements specified in NUREG-0737, Item II.D.1. The staff indicated in the letter that they conclude that there is reasonable assurance that the relief and safety valves installed on the primary coolant system at H. B. Robinson Plant, Unit No. 2, will perform their design functions under accident conditions.

However, the staff has determined that CP&L should have a procedure in place to disassemble, inspect, and refurbish the safety valves following their actuation because the test program showed that, following a lift, the valves may experience damage due to chattering. Because of the settings of these valves, they are only expected to actuate in the event of a design basis transient or accident. Since NUREG-0737, Item II.D.1, was not intended to prescribe actions following an event, CP&L concludes that the staff request constitutes a change beyond the licensing basis of the plant and thus constitutes a backfit as defined in 10CFR50.109(a)(1).

~~8703190548~~ 870317
PDR ADOCK 05000261
PDR

(388)

A046
1/1

Carolina Power & Light Company shares the staff concern that following such an event the valves could experience some damage. However, CP&L does not believe that a backfit consisting of a new plant procedure is necessary because existing plant procedures, administrative controls, and regulations discussed in Attachment I would call for an evaluation of the valves should such a transient occur. The attachment to this letter describes these controls. Carolina Power & Light Company is concerned that a new procedure would impose a new and redundant burden on the plant operators.

Carolina Power & Light Company looks forward to a prompt notification on the plan for resolving this appeal to reclassify the request as a backfit.

Questions regarding this matter may be referred to Mr. R. W. Prunty at (919) 836-7318.

Yours very truly,



S. R. Zimmerman
Manager

Nuclear Licensing Section

JSK/ccj (5148JSK)

Attachment

cc: Dr. J. Nelson Grace (NRC-RII)
Mr. H. Krug (NRC Resident Inspector - RNP)
Mr. G. Requa (NRC)

Attachment 1

The following provisions are currently in effect and will be relied upon to ensure safety valve operability in lieu of a specific procedure for post-operation refurbishment:

10 CFR 50

1. Paragraph 50.73(b)(2) requires a clear specific narrative statement of exactly what happened during a reportable event. The report should emphasize how systems, components, and operating personnel performed.
2. Paragraph 50.73(b)(4) requires the licensee to describe any corrective actions planned as a result of a reportable event, including the actions to reduce the probability of similar events occurring in the future.
3. Paragraph 50.73(c) authorizes the NRC to require the licensee to submit specific supplemental information beyond that required by 50.73(b); lifting the SRVs requires a one hour report.

OPERATING LICENSE NO. DPR-23

1. Operating License Section 3.B requires operation of the facility in accordance with the Technical Specifications. The request for commitment suggests that CP&L would violate the license without formal procedures specifically addressing inspection and testing of the safety valves.
2. Technical Specification paragraph 3.1.1.3.C.1 requires all code safeties to be operable whenever RCS temperature is above 350° or the reactor critical, therefore mandating requirements for power operations.
3. By definition in Technical Specification 1.3, a system or component is not operable unless it is capable of performing its specified function. Should a safety valve become inoperable or fail, it is declared inoperable or out of service.

PLANT PROCEDURES

- MMM-001 Maintenance shall be scheduled and planned so as not to compromise the safety of the plant. Planning shall include consideration of possible safety consequences of concurrent or sequential maintenance, testing, or operating activities. Where suitable documentation is not available to show that equipment is in conformance with maintenance and inspection requirements, the equipment shall not be returned to service.
- OMM-001 Ensures plant operations are conducted in accordance with the operating license and applicable regulatory requirements.
- PLP-013 Ensures that maintenance activities are planned and executed in compliance with plant Technical Specifications and support optimum safety and dependability. This includes corrective maintenance - the act of repairing systems and components to restore their operational and/or safety functions.

Ernie:

The attached provides responses to your questions on CP&L backfit appeal. Some of this info has been included in staff evaluation of backfit determination.

Ron Ballard

Attachment:
As stated

4/2/87

Carolina Power + Light.

Person - With respect to the backfit appeal, please provide the following by COB Today:

1) Verification that ~~there~~ disassembly, inspection and refurbishing of the safety valves is not written staff guidance in the SRP, NUREG-0737 Reg guide or elsewhere.

2) The first plant where this was required and the date of the SETR

3) Whether the other division has required this. If not, verification that none of their plants have the same type of valve. (over)

Please do not include technical details on why we required the disassembly etc. we can consider that later.

Let me see your note before you send it.

Ernie

1. NUREG-0737 states only that the safety valves be operable (i.e, capable of performing their function). There is no specific requirement for inspection and refurbishment stated in NUREG-0737. The need for inspection was identified during the review of plant submittals for Item II.D.1 (see item 2 below).

2. The need to inspect Crosby safety valves after actuation involving discharge of water was first identified during the review of the Kewaunee Plant submittals for NUREG-0737, Item II.D.1. By letter dated December 5, 1983, the staff asked Wisconsin Public Service Corporation (WPSC) to evaluate the effects of closing chatter on valve operability. In response (letter dated March 23, 1984) WPSC stated that, "the operating procedures at Kewaunee Nuclear Power Plant will be changed to indicate the plant will be shutdown subsequent to a safety valve actuation to inspect the safety valves..."

As a result of the findings during the Kewaunee review, the staff reexamined the test data and concluded that without inspection after actuation there was no assurance that the safety valve was still operable. This conclusion was stated in the Kewaunee SER on NUREG-0737, Item II.D.1. The utility committed on its own to inspect the valves and the SER reflected that commitment. That SER was issued on September 10, 1986.

To place these events in perspective, the rule on backfit became effective October 21, 1985.

The need to inspect Crosby valves was made evident by the EPRI tests. All plants using Crosby safety valves will be required to demonstrate continued operability after actuation involving discharge of water.

The following plants have made a commitment for procedures:

Kewaunee	SER	September 10, 1986
Vogtle	SER	December 14, 1986
RV 1	SER	November 31, 1986

The following plants have been requested to make a commitment:

Robinson 2	SER	January 14, 1987
IP 2	SER	March 3, 1987
PI 1&2	SER	January 9, 1987
Farley 1&2	SER	November 20, 1986
Surry 1&2	SER	March 26, 1987

3. Only two plants in PWR-B use Crosby valves (Davis Resse and Ft. Calhoun). The SER for these plants has not been issued; however, the same commitments (inspection and refurbishment) will be requested in those SERs.

WISCONSIN PUBLIC SERVICE CORPORATION



P.O. Box 1200, Green Bay, Wisconsin 54305

March 23, 1984

Director of Nuclear Reactor Regulation
 Attention: Mr. S. A. Varga, Chief
 Operating Reactors Branch No. 1
 Division of Licensing
 U.S. Nuclear Regulatory Commission
 Washington, D.C. 20555

Dear Mr. Varga:

Docket 50-305
 Operating License DPR-43
 Kewaunee Nuclear Power Plant
 NUREG-0737, Item II.D.1 "Performance Testing of Relief
 and Safety Valves" Request for Additional Information

- References: 1) Letter to C. W. Giesler of WPSC from S. A. Varga of the NRC dated December 5, 1983
 2) Letter to S. A. Varga of the NRC from C. W. Giesler of WPSC dated February 16, 1984

On December 5, 1983 (Reference 1), we received a questionnaire concerning our earlier responses to Item II.D.1 of NUREG-0737, "Performance Testing of Relief and Safety Valves," in which we were requested to respond within sixty (60) days. In Reference 2, we informed you that our response would take longer than originally anticipated due to the detailed nature of the questions, the number of submittals requested by the NRC recently, and the limited number of personnel available to respond within the time frame indicated. As such, we committed to a revised submittal schedule which had been discussed with and approved by our Project Manager.

This submittal fulfills our commitment to provide the requested additional information. For your convenience, please find enclosed four (4) copies of the completed questionnaire. These copies include microfiche of the RELAP5/ADLPIPE

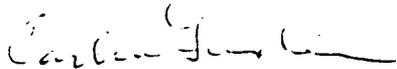
~~8403280048~~ 840323 (4pp)
 PDR ADDCK 05000305
 PDR

A046
 1/A
 Fiche To: Reg File 1 set
 M. Grotenhuis 3 set

Mr. S. A. Varga
March 23, 1984
Page 2

computer analyses (Appendix A and B). To the best of my knowledge, the information in this submittal is true and accurate.

Very truly yours,



C. W. Giesler
Vice President - Nuclear Power

JGT/js

Enc.

cc - Mr. Robert Nelson, US NRC - w/o attachment

Q. 7. During loop-seal tests the Crosby safety valves fluttered and chattered while in a partial lift position and also chattered on closure. Does this behavior have an adverse effect on the operability or reliability of the valves, so as to require an inspection after each such lift to assure the qualification of the valves has not been compromised?

A. 7. The operating procedures at the Kewaunee Nuclear Power Plant will be changed to indicate that the plant will be shutdown subsequent to a safety valve actuation to inspect the safety valves and to replace the rupture discs which are part of the Kewaunee S/RV discharge piping modification.

This would not include valve leakage during normal operation unless the leakage rate exceeds the KNPP technical specification limits.

Q-8. After the two tests on the Crosby valve, which were terminated by manually opening the valve to stop chattering, damaged internal parts were found which required refurbishment or replacement. After the loop seal tests the following parts were refurbished: bellows assembly landings, educator I.D., bonnet adapter I.D., upper and lower spring washer bearing surface, and adjusting bolt bearing surface. The following were replaced: spindle, nozzle, disc insert, piston, and piston slip ring. Should similar repairs or modifications be required if the safety valves lift to insure reliable operation of the plant valves?

A-8. As stated in A-7, the operating procedures at the Kewaunee Nuclear Power Plant will be changed to indicate that the plant will be shut down subsequent to a safety valve actuation to inspect the safety valves and to replace the rupture discs which are part of the Kewaunee S/RV discharge piping modification. (See Answer A-23 for a description of rupture disc assembly.)

This would not include valve leakage during normal operation unless the leakage rate exceeds the KNPP technical specification limits.