BWR OWNERS' GROUP

James M. Kenny, Chairman
Tel: (610)774-5362
Fax: (610)774-7540

c/o PPL Susquehanna LLC• Two North Ninth Street • Mail Code GENA6-1 • Allentown, PA, 18101-1179

BWROG-00087
October 24, 2000

Project 691

Document Control Desk
US Nuclear Regulatory Commission
Washington, DC 20555

Attn: Robert Pulsifer

Subject: BWR Owners' Group Position Paper on Requirements for Reporting RCIC System Inoperability

Attached please find the subject BWROG Position Paper. This issue was discussed during the September 13, 2000 NRC/BWROG Management Meeting. The Position Paper provides RCIC system design basis and regulatory information which we believe provides sufficient justification for not reporting RCIC system unavailability under the conditions described in the paper.

The reporting of RCIC unavailability has proven to be a burden for licensees in the past. It can also result in unwarranted regulatory action if a utility fails to make the unnecessary report or makes an error in the report. RCIC availability information is otherwise readily available to the NRC.

Please contact the undersigned if you have any questions or comments or to discuss this issue further. The BWROG is available for further discussions either via conference call or in a meeting.

Regards,

J. M. Kenny

James M. Kenny, Chairman
BWR Owners' Group

cc: BWROG Executive Oversight Committee
BWROG Primary Representatives
J Gray, Jr., BWROG Vice Chairman
L Daughtery, Entergy
TG Hurst, GE
KK Sedney, GE

D044

Potential Reporting of RCIC System Inoperability

1. Introduction

A BWR utility recently received a level 4 non-cited violation for failure to report RCIC unavailability (RCIC inoperable) as a loss of safety function in accordance with 10CFR50.72 and 50.73. This raises the question of what conditions require the reporting of RCIC inoperability. The answer to this question is a function of two issues, (a) the design basis function of the RCIC system and (b) the defined regulatory position as to the status of the RCIC system. These issues are addressed on a generic basis.

2. RCIC System Design Basis

During power operation the main condenser/feedwater system provides the primary heat sink. Isolation of the reactor from this heat sink can occur due to a number of abnormal operational events which culminate in closure of the main steamline isolation valves (MSIVs). While closure of the MSIVs is accompanied by reactor scram, fission product decay heat plus sensible heat stored in the fuel, etc. will result in a reactor vessel pressure increase, which will be relieved by opening of the safety/relief valves (SRVs). Opening of the SRVs causes loss of vessel inventory which is discharged to the suppression pool. This inventory loss is made up by operation of the RCIC system which provides a high pressure water source from the condensate storage tank. This inventory replacement is controlled by reactor vessel water level instrumentation or operator action as required. This inventory control process provides the mechanism by which decay heat removal is accomplished following reactor isolation.

There are differences in the BWR fleet on RCIC classification as safety related vs non-safety related and how it is described in the Plant's FSAR. In no case is RCIC relied upon to mitigate a design basis accident nor is it an engineered safety feature. Some FSARs describe RCIC in connection with the Rod Drop Accident (RDA) as potential water make up source. Following a postulated RDA, the RCIC (assuming the HPCI/HPCS is inoperable) would provide inventory control/decay heat removal function in response to the reactor vessel isolation caused by the RDA. RCIC does not mitigate the RDA.

Some Plant's FSARs describe RCIC as providing a back-up to HPCI/HPCS and that the RCIC system may provide a supporting function in meeting the requirements of 10CFR50, Appendix R. However, in this context the RCIC is redundant to the HPCI/HPCS (Reference 1) and its original design basis is unchanged.

The RCIC system is credited by many Plants in mitigating the Station Blackout (SBO). However the definition of SBO in 10CFR50.2 states that no single failure or Design Basis Accident is assumed concurrently. Consequently the RCIC functions only within its original design basis.

In summary, the RCIC system is designed for response to Anticipated Operational Occurrences and not to mitigate any Design Basis Accidents.

3. Regulatory Positions

Section 5.4.6 of the Standard Review Plan (Reference 2) which applies to approximately half of the BWR's currently operating describes RCIC as a safety system which provides a limited decay heat removal capability. There is no implication that the RCIC system mitigates any Design Basis Accident. The Standard Technical Specifications (Reference 3) RCIC system bases correctly describes RCIC as a system for which no credit is taken in the safety analyses. However, Regulatory Guide 1.70 Rev. 3 (Reference 4) provides the rationale for the retention of the RCIC in the technical specifications.

RCIC inoperability would only result in a report under 10CFR50.72 and 50.73 in the following circumstances (depending on provisions of the Plants Technical Specifications):

(a) As required by 10CFR50.72(b)(1)(i)(A) and 10CFR50.73(a)(2)(i)(A), the reporting of the initiation/completion of any plant shutdown required by the plant's Technical Specifications which results from the concurrent inoperability of RCIC and HPCI/HPCS.

(b) As required by 10CFR50.72 (b)(1)(i)(A) and 10CFR50.73(a)(2)(i)(A), the reporting of the initiation of any plant shutdown required by the plant's Technical Specifications which results from the inoperability of RCIC for 14 days.

For RCIC system inoperability alone, where the system is restored to OPERABLE status within the 14 day period, there is no requirement to report this condition. 10CFR50.72 and 50.73 are explicit in this regard.

4. Conclusion

For a situation involving only RCIC inoperability, 10CFR50.72 and 50.73 together with the relevant technical specification LCO provide explicit guidance that no reporting of the situation is required. Reporting would only be necessary if the 14 day COMPLETION TIME was reached in accordance with the LCO.

The LCO for RCIC is consistent with the LCO for HPCI/HPCS, which means that RCIC is treated in an overly conservative manner. This follows from a consideration of the relative design bases for the two systems. It has been shown that nowhere in any regulatory documentation is RCIC described as other than an important to safety system. It is included in the technical specifications based only on its contribution to overall risk reduction. In contrast, HPCI/HPCS is an engineered safety feature.

5. References

1. Original Safe Shutdown Paths for The BWR, GE-NE-T43-00002-00-01-R01, Rev.1 August 1999.

2. NUREG-0800, Standard Review Plan, Proposed Rev.3

3. NUREG-1433/1434 Vol.2, Rev.1, Standard Technical Specifications General Electric Plants, BWR/4 and BWR/6.

4. Regulatory Guide 1.70, Rev.3, November 1978.