



Consumers  
Power  
Company

David J VandeWalle  
Nuclear Licensing Administrator

General Offices: 1945 West Parnall Road, Jackson, MI 49201 • (517) 788-1636

September 30, 1982

Dennis M Crutchfield, Chief  
Operating Reactors Branch No 5  
Nuclear Reactor Regulation  
US Nuclear Regulatory Commission  
Washington, DC 20555

DOCKET 50-155 - LICENSE DPR-6 -  
BIG ROCK POINT PLANT - SEP TOPIC III-5.A,  
EFFECTS OF PIPE BREAK ON STRUCTURE,  
SYSTEMS AND COMPONENTS INSIDE CONTAINMENT

Attached is a report entitled "Evaluation of High Energy Pipe Break Inside Containment for the Big Rock Point Plant". This report is Consumers Power Company's response on SEP Topic III-5.B. The effects-oriented and simplified mechanistic approaches were used for evaluating the interactions associated with breaks at any location on each high energy line. The evaluation was conducted in three segments: 1) selection of analysis methods and criteria; 2) analysis of the effects of postulated pipe breaks for a typical high energy piping system (ie, the recirculation system); and 3) analysis of the remaining high energy line piping (eg, mainsteam piping, feedwater piping, etc.).

The effects-oriented and simplified mechanistic approaches were used to select break locations. The effects-oriented approach has been implemented in systems where locations of intermediate pipe welds could not be determined, or where the consequences of a potential break are severe. The simplified mechanistic approach, which postulates breaks at terminal ends at each pipe fitting and at each weld, was used to limit the number of breaks selected.

Since a complete set of targets for each section of high energy piping inside the containment has been established, Consumers Power Company will continue this study to determine the effect of each high energy line break on the systems designed to cope with a break. This effort is being conducted using the Big Rock Point Probabilistic Risk Assessment. Failure modes for each of the systems in which targets have been identified are being defined. The importance of each target failure on the ability to maintain the core in a safe condition will be determined.

A035  
S  
1/40

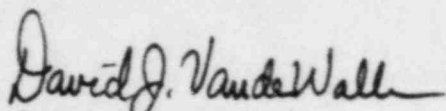
oc0982-0013a142

8210050425 820930  
PDR ADOCK 05000155  
PDR

D M Crutchfield, Chief  
Big Rock Point Plant  
SEP Topic III-5.A  
September 30, 1982

2

The attached report also contains a list of potential plant modifications which could reduce the likelihood of core damage should one of the identified high energy pipe breaks occur. The benefit of these modifications varies considerably depending on the importance of the targets which are affected by the break and the cost of the proposed modifications, some of which may be very difficult and costly to implement. Consumers Power Company has determined that based on the physical configuration of the steam drum, recirculation pump room and the location of high energy piping systems therein, pipe restraints and equipment shields are not practical resolutions and will not be considered for the remaining unresolved pipe breaks. The potential cost of these modifications as well as an evaluation of their importance in reducing the risk associated with high energy piping ruptures will be provided as part of our input to the integrated assessment.



David J Vandewalle  
Nuclear Licensing Administrator

CC Administrator, Region III, USNRC  
NRC Resident Inspector-Big Rock Point

Attachment