

Docket  
50-324  
50-325

JUL 30 1981

MEMORANDUM FOR: Darrell G. Eisenhut, Director  
Division of Licensing

FROM: James A. Van Vliet, Project Manager  
Operating Reactors Branch #2, DL

THRU: Thomas A. Ippolito, Chief  
Operating Reactors Branch #2, DL

SUBJECT: BRUNSWICK 1 AND 2 MSIV FAILURES



PURPOSE

By blue ticket #40 you requested a meeting by July 31, 1981 to discuss the MSIV failure problem at Brunswick. This memorandum: (1) provides the background and present status of that problem; and, (2) suggests that the meeting you requested be deferred pending completion of IE and NRR (MEB) evaluations.

BACKGROUND

The Brunswick MSIVs were built by Rockwell Manufacturing. In addition to Brunswick 1 and 2, these valves are installed in five domestic operating plants, seven foreign operating plants, and eight requisition plants. Seven failures of the type in question have been identified. Five of these failures have occurred at Brunswick 2, one at Brunswick 1, and one at Hatch 2. The July 18 failure was the third one to occur at Brunswick this year.

Two failure modes exist. The first mode is separation of the stem disc from the stem. (See attached figure.) Since the stem disc supports the weight of the main disc, the stem disc to stem separation results in main disc closure. The second failure mode is separation of the main disc from the main disc piston, also resulting in main disc closure.

Prior to the July 18 failure, the licensee's attempted solution to this problem has been to increase the number of pins at the mating surfaces. This has not proven successful.

Following the July 18 failure, an IE inspection team visited Brunswick and determined three probable reasons why these failures occur at Brunswick and essentially nowhere else. These reasons are:

- 1) Main steam piping runs are such that 90° elbows are located immediately upstream of the MSIVs. In addition, 30° elbows are located next to the 90° elbows on two of the four steam lines. The turbulence caused by these piping bends may result in significant vibration of MSIV components.

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- 2) Poor maintenance practices and incomplete maintenance procedures may be a major contributor to this problem. As an example, past MSIV inspections have suggested that the stem disc to stem and main disc pins may not have been reinstalled on some MSIVs following disassembly.
- 3) Incomplete thread engagement was discovered on the stem disc to stem connection and the main disc to piston connection. (This could be indicative of a manufacturer's QA program deficiency and will be investigated during an IE plant visit in August.)

STATUS

The licensee, in conjunction with Rockwell, has effected a temporary fix for the two failed valves on Unit 2, and IE has permitted continued operation based on acceptance of a licensee safety evaluation. The licensee also plans to inspect/repair Unit 1 MSIVs during the present outage. For the long-term solution, they have contracted with Wylie Labs to work with Rockwell in finding the true cause and permanent solution for this problem. They are interested in a quick resolution.

The IE and MEB evaluations should be completed within the next thirty days. At that time we will be in a better position to determine what, if any, additional action is warranted. I will keep you advised of developments on this matter.

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James A. Van Vliet, Project Manager  
 Operating Reactors Branch #2  
 Division of Licensing

Attachment  
 As stated

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 Docket File  
 NRC PDR  
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| SURNAME | S. Norris | T. Ippolito | J. Van Vliet | T. Novak |  |  |
| DATE    | 7/1/81    | 7/30/81     | 7/30/81      | 7/30/81  |  |  |