

Date: JUL 9 1975

Serial No.: IE-C&O-75-14

TRANSFER OF LEAD RESPONSIBILITY

To: K. R. Goller, Assistant Director for Operating Reactors, RL

Subject: Possible Deficiency in Performance of the Thiosulfate
Reactor Building Spray System

Facilities: Arkansas Nuclear One-1, Crystal River 3, Midland 1 & 2,
and Three Mile Island 1 & 2

Responsible Branch Chief: K. V. Seyfrit

Description of Item Requiring Resolution:

Babcock and Wilcox has reported that analysis of the hydraulic performance of the reactor building spray system using a newly developed computer code, "Symmet 2," has revealed that the sodium hydroxide and the sodium thiosulfate tanks empty before the borated water storage tank. As a result, there would be no hydroxide or thiosulfate in the reactor building spray system until the pump suction is switched to the reactor building pump. Allowing five minutes for operator action, the spray system could be without hydroxide or thiosulfate for as long as 21 minutes.

This appears to represent a significant deviation from the performance specified in the FSAR (6.2.2.1) in that the two chemical additive tanks and the borated water storage tank do not draw down together under calculated accident conditions. This deviation in performance could result in either or both of the following adverse effects following a LOCA:

1. The analysis of radiation releases for an individual plant may show that off-site doses are higher than those presented in the FSAR.
2. The pH of the reactor building spray solution may, for a short period, exceed the value of 9.5 stated in Babcock and Wilcox Topical Report BAW-10017, Rev. 1, "Stability and Compatibility of Sodium Thiosulfate Spray Solution - R&D Report (Proprietary)."

IE is also concerned that when the hydroxide and the thiosulfate tanks become empty that air could enter the spray pump suction, the low pressure injection pump suction, and possibly cause pump damage due to cavitation.

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IE Recommendations and Proposed Course of Action

1. The Division of Reactor Licensing will review Babcock and Wilcox's report on the performance of the Sodium Thiosulfate Reactor Building Spray System dated May 8, 1975 and determine if any operating restrictions and/or modifications to those facilities with operating licenses are required.
2. The Division of Reactor Licensing will determine if amendments to the FSAR and/or modifications to those facilities with construction permits are required.
3. The Office of Inspection and Enforcement will provide additional information as required.
4. The Office of Inspection and Enforcement will verify adherence to any requirements imposed by the Division of Reactor Licensing.

Reference:

Letter from K. E. Sahrke of Babcock and Wilcox to D. F. Knuth dated May 8, 1975.

Concurrence:

Original signed by
B. H. Grier

B. H. Grier, Assistant Director for Construction & Operations, IE Date

Kr R. Goller, Assistant Director for Operating Reactors, RL Date

- cc: D. F. Knuth, IE H. D. Thornburg, IE
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