

January 27, 1993

MEMORANDUM FOR: Robert C. Jones, Chief  
Reactor Systems Branch  
Division of Systems Safety and Analysis

THRU: Timothy E. Collins, Chief  
BWR Reactor Systems Section  
Reactor Systems Branch  
Division of Systems Safety and Analysis

FROM: Amy E. Cabbage, Reactor Systems Engineer  
BWR Reactor Systems Section  
Reactor Systems Branch  
Division of Systems Safety and Analysis

SUBJECT: MEETING SUMMARY FROM BWROG MEETING ON POTENTIAL BWR WATER LEVEL  
INSTRUMENT ERRORS

A meeting was held with the BWR Owners' group (BWROG) on January 15, 1993 to update the staff on current BWROG activities to assess and address potential inaccuracies of BWR water level instrumentation caused by the evolution of dissolved non-condensable gas during and after rapid depressurization events. The list of attendees is provided in the enclosure, and a summary of the issues discussed is provided below.

The BWROG informed the staff that there was a transfer of responsibility for this issue from the Regulatory Response Group (RRG) to a full committee. The BWROG then proceeded to discuss the BWROG program for resolution of this issue. They emphasized that the objective of the program is to address and resolve the issue by determining the validity of the postulated phenomenon, determining the effectiveness of potential hardware modifications, and by performing analyses and testing. The purpose of the program, not to prove that modifications are not necessary.

The Owners' group provided an update to the status of all aspects of the program. Gathering of plant specific data and development of the analytical model are proceeding as scheduled, and are nearing completion. The reference leg de-gas test is proceeding within one week of the schedule. Testing is scheduled to begin mid-February at the EPRI facility in Charlotte, North Carolina. The staff was invited to travel to Charlotte during the week of February 8 to tour and inspect the test facility. The BWROG has selected a facility and is making preliminary preparations for the condensate chamber test. At this time, however, they stated that they are waiting for the results of the de-gas test prior to moving forward with the condensate chamber test. The Owners' group is also working on acceptance criteria for level indication errors. The NRC staff requested a separate meeting to discuss the BWROG acceptance criteria when they are established.

The BWROG discussed that when certain factors are taken into account, such as the bubble rise velocity, the hydrostatic head of the column of water, and the relaxation time or de-gas rate, that calculated errors may be less than those initially predicted. They are also finding that the de-gas rate may be independent of the rate of depressurization. The BWROG performed a demonstration of these effects during the meeting. The BWROG noted that

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these results were strictly preliminary and that the testing program and analyses must be performed before coming to any conclusions. They have, however, come to the conclusion that the potential errors are well bounded by initial calculations presented in July of 1992. The staff noted that a representative of the B&W Owners' Group (B&WOG) said that B&W had performed some testing of reference legs for the non-condensable gas problem in the mid 1970's. The BWROG said that they would pursue this with the B&WOG.

There is a separate modification subcommittee that is moving forward independently of the testing and analyses programs to identify and evaluate potential hardware modifications. The subcommittee is evaluating potential modifications such as backfill of the reference legs or venting the condensate chamber.

The staff reiterated the position that the schedule for completion of the test program must not be delayed, and that it will be difficult to convince the staff that hardware modifications are not required to resolve this problem. While the staff was interested in the BWROG demonstration, they remained skeptical and are waiting for the results of the detailed test and analyses program. Due to the short time schedule of the program, the staff requested that the BWROG maintain frequent communications with the staff so that we can remain involved, and observe testing. The staff requested another update meeting via telecon on February 1. The staff also requested a meeting to discuss the condensate chamber test when the decision is made whether or not to proceed with this test, in addition to a meeting on acceptance criteria as discussed above. The staff expressed interest in traveling to Charlotte, NC to tour the de-gas test facility. The plans for the meeting on acceptance criteria and the tour of the test facility will be finalized during the February 1 telecon.

/s/

Amy E. Cabbage, Reactor Systems Engineer  
BWR Reactor Systems Section  
Reactor Systems Branch  
Division of Systems Safety and Analysis

Enclosures: As stated

cc w/enclosure:  
A. Thadani  
P. Blanch

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WButler (14D-1)

GKelly (Region I)

ACabbage

ENCLOSURE

MEETING ATTENDEES

<u>NAME</u>	<u>AFFILIATION</u>	<u>TELEPHONE</u>
A. Thadani	NRC	301-504-2884
R. Jones	NRC	301-504-2895
T. Collins	NRC	301-504-2897
A. Cabbage	NRC	301-504-2875
T. Quay	NRC	301-504-1371
G. Beck	PECO/BWROG	215-640-6450
P. Marriott	GENE/BWROG	403-925-6948
L. Gifford	GENE/BWROG	301-770-9650
J. Beard	NUS	301-858-8664
H. Yasui	Tokyo Electric Power Co.	202-457-0790
K. Graney	Serch Licensing	301-417-3299