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SEP 28 1992

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D. C. 20555

10 CFR 50.54(f)

Gentlemen:

In the matter of)
Tennessee Valley Authority)

Docket Nos. 50-259
50-260
50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - RESPONSE TO GENERIC LETTER
(GL) 92-04 - RESOLUTION OF THE ISSUES RELATED TO REACTOR
VESSEL WATER LEVEL INSTRUMENTATION IN BWRs PURSUANT TO 10 CFR
50.54(f)

This letter provides the information requested by the NRC in
GL 92-04 pursuant to 10 CFR 50.54(f) for TVA's Browns Ferry
Nuclear Plant. The answers to the specific Requested Actions
are as follows:

Requested Action 1.

1. In light of potential errors resulting from the effects
of noncondensable gas, each licensee should determine:
 - a. The impact of potential level indication errors on
automatic safety system response during all licensing
basis transients and accidents;
 - b. The impact of potential level indication errors
on operator's short and long term actions during
and after all licensing basis accidents and
transients;
 - c. The impact of potential level indication errors
on operator actions prescribed in emergency
operating procedures or other affected procedures
not covered in (b).

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Response

- 1.a. On August 28, 1992, The BWR Owners' Group (BWROG) provided to the NRC and each of the member utilities report BWROG 92-074 BWR Reactor Vessel Water Level Instrumentation, Revision 1. BWROG 92-074 addresses the safety impact of potential water level indication errors on automatic system response during all licensing basis transients and accidents. The analytical basis is contained in Section 6.0 Safety Analysis. Plant response is summarized in Section 2.2, Plant Responses to Postulated Accident Scenarios. TVA recognizes that there are differences between the designs of BWR plants and systems; however our review of the report and Attachment 2 to the report, Generic Applicability of This Report's Safety Analysis, by GE Nuclear Energy, reinforces TVA's general understanding that the basic plant response to the design basis transients and accidents is sufficiently similar to obviate the need for additional plant-specific analysis. The diverse initiating signal for low pressure Emergency Core Cooling System for Browns Ferry (BFN) requires both a high drywell pressure and a low reactor vessel pressure rather than only a high drywell pressure as in the Report. Since the two required signals are not dependent on reference leg inventory, the conclusions of the report are still valid.
- 1.b. BWROG 92-074 section 6.9 Operator Responses, addresses the operator actions that could be anticipated in response to potential water level indication errors. In the short term the report discusses in section 6.0 that the automatic safety actions will be performed as necessary. Additional guidance has been provided to the plant operations personnel as indicated in Enclosure 1. The guidance has sensitized the operators to the possible concerns with accurate water level readings following a rapid depressurization while not necessitating a change to the existing long term guidance provided in the Emergency Operating Instructions (EOIs).

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- 1.c. As stated in section 6.9 of BWROG 92-074 and 1.b. above, the operators have adequate information in the present EOIs as augmented by the additional training support in Enclosure 1. The BWROG Emergency Procedures Committee will evaluate the information from the BWROG program of analysis and testing to determine if there is a need for any additional guidance in the EOIs.

Requested Action 2.

2. Based upon the results of (1), above, each licensee should notify the NRC of short term actions taken, such as:
- a. Periodic monitoring of level instrumentation system leakage; and,
 - b. Implementation of procedures and operator training to assure that potential level errors will not result in improper operator actions.

response

2. TVA has informed its operators of information relating to noncondensibles (NCs) in the reference leg issue per Enclosure 1. The existing information about the configuration of the cold leg water level instrumentation has been reviewed and provided to the BWROG to be factored into the test configurations in the BWROG program (provided to the NRC in the August 12, 1992 letter from the BWROG). The significance of different configuration characteristics on reference legs will be better understood after the results of the BWROG test and analysis program are available. In accordance with Surveillance Instruction SI-2, water level indications are checked and compared each shift (some indications are compared daily). Unacceptable differences in indication require a review by the Senior Reactor Operator with assistance as required by the Technical and Maintenance staff.

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Requested Action 3.

3. Each licensee should provide its plans and schedule for corrective actions, including any proposed hardware modifications necessary to ensure the level instrumentation design is of high functional reliability for long term operation. Since this instrumentation plays an important role in plant safety and is required for both normal and accident conditions, the staff recommends that each utility implement its longer term actions to assure a level instrumentation system of high functional reliability at the first opportunity but prior to starting up after the next refueling outage commencing 3 months after the date of this letter.

Response

3. TVA endorses the BWROG plans originally provided in BWROG letter to the NRC on August 12, 1992. The BWROG testing and analytical development program should provide a more accurate estimate of the effects of NCs coming out of solution on reference legs under depressurization considering such factors as representative rather than instantaneous depressurization rates, gravity effects on diffusion gradients, friction effects, bubble separation, boundary layers, correct gas species, and so on. TVA expects that the results of this investigation will show that Browns Ferry has a level instrumentation system of high functional reliability. Should the BWROG investigation program determine that modifications are required to ensure high functional reliability, Browns Ferry will be modified in consideration of the results of the BWROG program.

A summary list of the commitments associated with this letter is provided in Enclosure 2.

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If you have any questions, please contact Greg Pierce at
(205) 729-7566.

Sincerely,


O. J. Zeringue

Subscribed and sworn to before me
on this 28th day of Sept., 1992.


Notary Public

My Commission Expires 07-07-1996

Enclosures

cc (Enclosures):

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ENCLOSURE 1

SUMMARY OF TRAINING PROGRAM FOR OPERATORS ON NONCONDENSIBLES IN REFERENCE LEGS

On July 30, 1992, Operators were notified of the potential for level indication errors due to noncondensibles coming out of solution when the reactor is depressurized. This was accomplished via shift briefings. Urgent required reading information packages 92-0731 and 92-0902 were issued on July 31, 1992 and September 9, 1992 respectively to provide operators with additional information and guidance regarding NCs in reference legs. Urgent required reading is required to be reviewed within 15 days to maintain shift qualifications. This training will be reinforced and amplified via training dispatches and lectures as appropriate.

ENCLOSURE 2

SUMMARY LIST OF COMMITMENTS RELATED TO GL 92-04

1. TVA will continue to support the program of analysis, testing and development of possible hardware changes which is being conducted by the BWROG. The results and conclusions of the BWROG program will be evaluated for possible applicability to Browns Ferry Nuclear Plant.
2. TVA will review the results of the BWROG program for potential training requirements for operators.