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NRC REQUESTS BOILING WATER REACTOR LICENSEES
DETERMINE WATER LEVEL DEVICE COMPLIANCE

The Nuclear Regulatory Commission staff has requested utilities licensed to operate boiling water reactors (BWRs) to determine promptly if they are in compliance with NRC regulations related to the adequacy of reactor vessel water level instrumentation.

The staff is acting on the basis of its conclusion that under some unlikely accident conditions the effects of noncondensable gas in BWR water level instruments may cause unreliable level indication and not satisfy NRC regulations. General design criteria require, in part, that reliable instrumentation be provided to monitor plant systems under accidents conditions and that the effects of "natural phenomena, and of normal operating, maintenance, testing, and postulated accident conditions . . . do not result in the loss of the protection function."

On July 24, the NRC staff issued an Information Notice advising all licensees that noncondensable gases may become dissolved in a part of BWR water level instrumentation and could result in a false high water level indication in the reactor vessel after a rapid depressurization accident. Water level signals are used for actuating automatic safety systems and for guiding reactor operators during and after an event.

After reviewing analyses provided by the Boiling Water Reactor Owners group at a July 29 public meeting and assessing selected accident scenarios, the NRC staff has concluded that interim plant operation is acceptable. The reasons for the staff's conclusion are that automatic safety system activation is not inhibited by this potential level error, emergency procedures are in place which include actions to be taken for potential level error, an accident which would cause a large water level error is remote and significant water level error occurring simultaneously in redundant water level indicators is unlikely.

However, for longer term operations the NRC staff considers potential water level instrumentation inaccuracies an important

issue because level indication has safety functions in all modes of BWR operation. Further, because the analyses provided by the BWR Owners Group are generic and the magnitude of possible errors depends strongly upon plant-specific factors, such as system leakage and geometry, the NRC staff has requested that the analyses be reviewed promptly.

Based on concerns of potential inaccuracies from the effects of noncondensable gas, BWR licensees have been requested, by letter from the NRC staff, to determine their impact on:

- 1) automatic safety system response during all reactor events and accidents;
- 2) an operator's short and long-term actions during and after all reactor events and accidents; and
- 3) operator actions prescribed in emergency operating procedures or other procedures.

After obtaining the results of these actions, BWR licensees are requested to notify the NRC of short-term fixes taken, such as periodic monitoring of level instrumentation system leakage and implementation of procedures and operator training to assure that potential level errors will not result in improper operator actions.

BWR licensees also have been requested to provide the NRC their plans and a schedule for corrective actions, including any proposed hardware modifications to assure that the level instrumentation system design is highly reliable for long-term operations. The NRC staff advises utilities to implement their longer term actions before starting up after the next refueling outage commencing three months after August 19.

BWR licensees are required to provide a response to NRC by September 27.

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