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NRC STAFF TO REQUIRE MODIFICATION OF WATER LEVEL
MEASURING INSTRUMENTS IN BOILING WATER REACTORS

The Nuclear Regulatory Commission is asking utilities operating all but two boiling water reactor (BWR) nuclear power plants to modify the instruments in their plants which measure water levels in the reactor vessel to assure that readings provided by the instruments are accurate. The modifications are to be made during the first cold shutdown which occurs after July 30 this year.

In the meantime, operators, within 15 days, are to take additional compensatory measures to assure that reactor operators are able to deal effectively with situations when the reactor has been shutdown and is being cooled down and where inaccurate level indications might be expected to occur as a result of noncondensable gases becoming dissolved in the water. These steps include:

- establishment of enhanced monitoring of all reactor pressure vessel level instruments to provide early detection of level anomalies associated with dissolved noncondensable gases in the water;
- development of enhanced procedures or additional restrictions and controls for valve alignments and maintenance that have a potential for draining the reactor pressure vessel when the reactor is in a reduced-pressure condition;
- alerting operators to potentially confusing or misleading level indications that may occur during accidents or transients initiating from a reduced-pressure condition.

Facilities that are in a cold shutdown condition within this 15-day period are to complete the above actions within 15 days or prior to startup, whichever is later.

In addition, by July 30, each licensee is to complete augmented operator training on loss of reactor pressure vessel cooling water when the reactor is in a reduced-pressure condition, including reactor pressure vessel drain-down events and cracks or breaks in piping.

Previously, NRC concerns about inaccurate water level indications in boiling water reactors have been confined to accident scenarios which could occur when a reactor is operating at full pressure. These concerns were addressed in an August 1992 Generic Letter which directed BWR utilities to take compensatory measures and to determine what, if any, modifications should be made in the instruments. Licensees were to submit their plans for long-term actions by July of this year and to implement them at the earliest opportunity.

However, on January 21 of this year, operators at Washington Public Power Supply System's WNP-2, located near Richland, Washington, observed a sustained level indication error after the reactor had been shutdown and was being cooled down. In that case, the licensee determined that errors of this type could result in failure to automatically isolate a leak in the residual heat removal system during reactor cool down. This was confirmed in a May 20 response to questions which the staff posed to the Boiling Water Reactor Owners Group (BWROG).

The two boiling water reactors exempt from these requirements are:

Unit 1 at the Millstone nuclear power plant, located near New London, Connecticut, where Northeast Utilities has already made modifications to the water level instrumentation which are acceptable to the NRC staff;

and Consumers Power Company of Michigan's Big Rock Point nuclear power plant located near Charlevoix, Michigan, because the instruments used at the plant are not susceptible to this problem.

BWR licensees are to advise the NRC staff in writing within 15 days if they do not intend to comply with the new, interim compensatory measures and describe their proposed alternative course of action, the schedule for completing it and a justification for deviating from the requested actions. Otherwise, by July 30, licensees are to advise the staff in writing of the modifications which they intend to implement at the next cold shutdown and confirm completion of short-term measures.