

October 23, 1984

DCR 014

Dockets Nos. 50-321  
and 50-366

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Mr. J. T. Beckham, Jr.  
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Georgia Power Company  
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Dear Mr. Beckham:

SUBJECT: UPDATED SAFETY EVALUATION FOR NUREG-0737, ITEM II.E.4.2.7

We have reviewed your submittals dated April 10, May 7 and August 16, 1984, relating to TMI Action Plan, Item II.E.4.2.7, "Primary Containment High Radiation to Close Vent and Purge Valves." At this time we find that for this NUREG-0737 items, Edwin I Hatch Nuclear Plant, Units Nos. 1 and 2 is in non-compliance with the Commission approved guidance. Our evaluations provided to the BWR Owner's Group in our letters dated October 14, 1981, and May 31, 1983, require clarification relative to which line sizes need isolation for a postulated LOCA.

Therefore, the NRC staff position on the use of radiation signals to isolate containment vent and purge valves in lines that are used during startup, normal operation, and shutdown of the plant is updated. Our intention is that each of the "containment purge and vent isolation valves must be closed on a high radiation signal" (refer to Position (7) on page 3-90 of NUREG-0737).

Our updated Safety Evaluation is enclosed. Your action is requested to achieve compliance as soon as practicable. Your reply is requested within 30 days of receipt of this letter.

Sincerely,

John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing

Enclosure:  
As stated

cc w/enclosure:  
See next page

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UPDATED EVALUATION OF BWR OWNERS GROUP POSITION ON  
ITEM II.E.4.2.(7) OF NUREG-0737

In NUREG-0737, Item II.E.4.2.(7), we state that containment purge and vent isolation valves must close on a high radiation signal. The BWR Owners Group has performed an assessment to determine the benefits of providing automatic closure of the containment vent and purge valves on a containment high radiation signal. This assessment, contained in a letter from T. J. Dente to D. G. Eisenhut, dated June 29, 1981, concludes that this automatic closure on a high radiation signal will not appreciably alter the probability for significant releases of radioactivity through these lines. The bases for the BWR Owners Group conclusion relies on the following points:

1. Automatic isolation is already achieved through diverse inputs (high dry-well pressure and low reactor water level);
2. The containment vent and purge valves are normally closed;
3. Several diverse methods exist for detection of primary coolant boundary leakage that could indicate to the operator that a high radiation condition in the containment may exist; and
4. Pipe breaks leading to leakage rates less than the Technical Specification limits that are not immediately isolated by the operator result in offsite doses less than 10 CFR Part 100 dose limits.

It is the staff's position that the above arguments for not having a high radiation isolation signal for the containment vent and purge valves are inadequate. The staff strongly believes that these valves should be isolated on the bases of a direct measurement of the parameter that the containment isolation system is designed to protect the public from, i.e., radiation. This view is based on the potentially greater impact on offsite doses relative to releases through other lines penetrating the containment, since the vent and purge lines provide a direct path from the containment atmosphere to the environs. The staff's view is that having only indirect parameters as isolation signals, such as high drywell pressure or low reactor water level, is insufficient for assuring that these valves will close in a timely manner.

The argument that containment vent and purge valves are normally closed and, therefore, do not require a high radiation isolation signal is insufficient because these valves are normally open during startup and shutdown. Since these are transient conditions, we would expect at least as high a likelihood of a release occurring during these periods as during steady state periods. Moreover, since it is essential for the containment vent and purge valves to receive timely isolation signals under these circumstances, the staff's position is that a high radiation isolation signal is needed to accomplish this function.

Reliance on operator action to close the containment vent and purge valves is not acceptable because of the delays that could occur while the operator is handling matters more directly related to the initiating event.



In response to the argument that leakages less than the Technical Specification limits produce low offsite doses, the staff feels that the purpose of adding a high radiation isolation signal to the containment vent and purge valves is to protect against substantial releases of radiation (10 CFR Part 100 dose limits) for accident conditions while for normal conditions (e.g., leakages less than Technical Specification limits), the purpose of these valves is to close before 10 CFR Part 20 dose limits are exceeded.

In summary, it is the staff's position that all containment vent and purge valves in lines that are used during startup, normal operation, and shutdown of the plant be provided with a high radiation isolation signal. The range and sensitivity of the radiation monitors used for this purpose shall be sufficient to assure timely closure of the vent and purge valves under both accident conditions (limiting offsite doses to less than 10 CFR Part 100 guidelines) and normal operating conditions (limiting offsite doses to less than 10 CFR Part 20 limits). The high radiation signal may be either safety grade equipment or non-safety grade equipment. Our aim is to have a high radiation isolation signal operable at the earliest possible time. Technical Specifications are needed consistent with the staff guidance provided in Generic Letter 82-16 dated September 20, 1982.