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Director of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2
CONTAINMENT PURGING DURING NORMAL PLANT OPERATION

Gentlemen:

As stated in our January 9, 1979, letter written in response to your November 29, 1978, request, Georgia Power Company has conducted a study of containment purging during normal plant operation. Specific attention was given to the impact of purging during operation on Emergency Core Cooling System (ECCS) performance, evaluation of the radiological consequences of a design basis accident (DBA) requiring containment isolation during purge operations, and evaluation of containment purge and isolation instrumentation and control circuit design.

Our January 9, 1979, letter further stated our intention to justify unlimited purging during normal plant operation. The information in Attachment 1 is provided in support of that position.

Attachment 2 is a summary of the review of all safety actuation signal circuits which incorporate a manual override feature. In addition, the containment spray injection valves have a key lock manual bypass switch which bypasses all isolation signals. The ability to bypass all isolation signals is a requirement for the Containment Spray System.

In summary, our reviews conducted subsequent to your November 29, 1978, letter have not identified any problems which should preclude the safe performance of containment purging or venting during normal operation. ECCS performance has been shown not to be degraded, the radiological consequences of the postulated DBA during containment purging do not exceed those stated in the facility safety analysis reports, and the design review of all safety actuation signal circuits which incorporate a manual override feature has not identified any problems other than the bypass logic on the 2-inch normal operations bypass valves mentioned in Attachment 1. As stated in Attachment 1, a design change has already been initiated to correct the bypass logic for those valves.

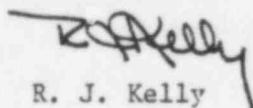
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We therefore conclude that adequate justification exists to continue to allow unlimited purging on Unit 1 and to allow unlimited purging on Unit 2.

Very truly yours,


R. J. Kelly

RDB/mt

Attachments

xc: R. A. Thomas
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EDWIN I. HATCH NUCLEAR PLANT CONTAINMENT
VENT AND PURGE DESIGN AND OPERATION

DESIGN:

Plant Hatch Units 1 and 2 have 18-inch purge lines from the drywell and torus. Two redundant 2-inch lines are provided to bypass each 18-inch line's isolation valves for use post-loss-of-coolant-accident (LOCA). An additional 2-inch line is provided to bypass each 18-inch line for controlled use during normal operation.

Each 18-inch line and each 2-inch line has redundant containment isolation valves. Downstream of the two 18-inch containment isolation butterfly valves is a manually operated, locked closed 18-inch gate valve. The 18-inch valves and the normal bypass 2-inch valves receive containment isolation signals (Drywell Pressure 2 psig, RPV Low Water Level 12.5" reference, Reactor Building or Refueling Area Ventilation Hi Radiation) which are provide to allow isolation very early in the DBA prior to any potential core damage. All containment isolation valves associated with the containment purge and inerting systems have been purchased to "be capable of opening and closing against 62 psi differential pressure at 340°F." The phrase in quotes is extracted from purchase specifications SS-2102-107 for Unit 2 and SS-6902-107 for Unit 1.

The present logic on the normal plant operation purge valves (2-inch lines) allows purging at reactor operating conditions with all the primary containment isolation signals available to isolate the valves. Key lock manual override is required for purging at steam line pressures below 850 psig. The original intent of the design logic was to allow purging below 850 psig steam line pressure and to require an administratively controlled key lock bypass of the steam line pressure signal for purging during normal plant operations. A design change has been initiated to correct this discrepancy. Control room annunciation is provided when the key lock bypass to normal purge valves is used.

The discharge of the 18-inch and 2-inch purge and vent lines is directed through the common 18-inch line to the suction of the Standby Gas Treatment System (SGTS).

OPERATION:

Post-LOCA purging is performed via the redundant 2-inch bypass lines around the 18-inch valves. The opening of the isolation valves in the post-LOCA bypass lines is annunciated in the Control Room. In addition to the two containment isolation valves, a third valve is provided on each of the post-LOCA purge lines which performs the function of a flow control valve, with the flow controllers set at zero during normal plant operation.

During normal power operation on Unit 2, periodic containment venting can be performed by opening the key locked isolation valves in the 2-inch normal operation vent and purge line to bypass the 18-inch purge off vent valves.

Should the plant be subjected to a DBA while the containment is being vented (i.e., the 2-inch nominal diameter valves are open) this configuration would not affect ECCS performance. The 2-inch nominal diameter opening would not cause any change in calculated containment pressures since isolation will be effected post-DBA, and the vented gas from the containment atmosphere is directed to the suction of the SGTS via piping. SGTS overpressure has been evaluated and there is no overpressure due to coincident DBA and containment venting via the two inch lines. An analysis was performed, with unacceptable results, to evaluate the effects of LOCA during purging through the 18-inch lines. Assuming that the isolation valves close at 5-second closure rate post-LOCA, the analysis shows that the SGTS filter trains would overpressurize (i.e., 2 psig) within 0.67 seconds. The analysis was performed for purging through the 2-inch bypass lines from the drywell and torus with acceptable results.

As a result of the rapid closure time (5 seconds) for the containment vent valves, no post-DBA radiological consequences in excess of those reported in the plant safety analysis reports are to be expected.

During normal power operation on Unit 1, periodic containment venting has not been found to be practical using the normal operation 2-inch purge line. Insufficient flow is developed in this line to adequately vent the drywell when required. As a result, when venting is called for, an operator is stationed at the controls of the post-LOCA purge valves and venting proceeds via one of the two redundant 2-inch post-LOCA purge and vent bypass lines. This operator's sole duty during the venting operation is to close the 2-inch isolation valves if isolation is required (DBA indicated). A design change has been initiated to provide the same group isolation signals to these valves as currently provided to the 2-inch normal operation bypass valves. Once this change has been implemented the operator will no longer be required to stand at the valve control during venting.

The stationing of an operator at the valve controls during the venting process on Unit 1 takes the place of the containment isolation logic which is available during Unit 2 venting, thus providing protection in the event of a DBA. As a result, the analyses mentioned above for Unit 2 are also applicable to Unit 1.