Enclosure 1

Edwin I. Hatch Nuclear Plant
Request to Revise Technical Specifications
Suppression Chamber - Drywell Vacuum Breakers

Basis for Change Request

Proposed Change

Unit 1 Technical Specification 3.7.A.4 and Unit 2 Technical Specification 3.6.4.1 require all suppression chamber - drywell vacuum breakers to be Operable and closed. Certain normal operations can result in the opening of one or more of the suppression chamber - drywell vacuum breakers. Such occurrences place the plant in a situation in which the requirements of the limiting condition for operation (LCO) (i.e., vacuum breakers Operable and closed) are not met, although the vacuum breakers are operating as designed and are still fully capable of fulfilling their intended safety function. This proposed change revises these specifications to allow one or more vacuum breakers to open during surveillance testing or when performing their intended function without immediately considering the vacuum breakers inoperable and entering Technical Specification Action statements. The proposed change is consistent with the philosophy expressed in the corresponding specification (LCO 3.6.1.8) of the improved BWR/4 Standard Technical Specifications (NUREG-1433).

Basis for Proposed Change

Both Hatch Units 1 and 2 primary containments are equipped with vacuum breakers which are designed to allow differential pressure to be relieved between the suppression chamber and the drywell. Following a postulated loss of coolant accident (LOCA), steam from the reactor would be blown down from the drywell through vent lines and discharged under the water in the suppression chamber where it would be condensed. As this process occurs, the accumulation of noncondensible gases in the suppression chamber would increase the suppression chamber pressure until it equalizes with drywell pressure. Subsequently, steam condensation could occur in the drywell due to subcooled emergency core cooling system water flow from the break or manual actuation of the drywell spray system. This would cause a differential pressure to develop between the suppression chamber and the drywell. The suppression chamber - drywell vacuum breakers are designed to automatically relieve this differential pressure.

There are other ways in which a differential pressure between the suppression chamber and the drywell could develop. An inadvertent actuation of the drywell spray system could result in depressurization of the drywell and opening of one or more vacuum breakers. Cooling cycles in the drywell could affect the differential pressure, but would normally be insufficient to open a vacuum breaker. Operations which add gas to the suppression chamber and/or

9307020360 930628
PDR ADOCK 05000321
P PDR

remove gas from the drywell can increase the differential pressure enough to cause vacuum breaker opening. For example, such operations may include functional testing of the primary containment hydrogen recombiners (for Unit 2 only) and inerting/deinerting of the primary containment.

The Unit 2 hydrogen recombiner system is designed to function following a LOCA to recombine hydrogen and oxygen, which may be present inside the primary containment, into water vapor. The hydrogen recombiner system functions by taking suction from the drywell atmosphere, combining the hydrogen and oxygen in a reaction chamber, and discharging the resultant water to the suppression chamber. Hatch Unit 1 has no hydrogen recombiner system installed.

Operability of the Unit 2 hydrogen recombiner system is required by Unit 2 Technical Specification 3.6.6.2. Performance of a functional test of the hydrogen recombiner system is required by Unit 2 Technical Specification 4.6.6.2.a. During this periodic testing, drywell atmosphere is drawn into the hydrogen recombiner reaction chamber and discharged to the suppression chamber. Since, during normal operation, there is not a sufficient concentration of hydrogen and oxygen to cause recombination, there is no resultant water, and gas is discharged to the suppression chamber. This causes an increase in the suppression chamber pressure relative to the drywell pressure. This differential pressure is relieved by the automatic opening of one or more of the suppression chamber - drywell vacuum breakers. This places the plant in a condition of being unable to meet the LCO of Technical Specification 3.6.4.1. This proposed change revises Unit 2 Technical Specification 3.6.4.1 to allow one or more vacuum breakers to be open during surveillances, such as hydrogen recombiner testing, without the requirement to enter an Action statement or perform any subsequent surveillance other than verification that the vacuum breakers reclose. This verification will be required by plant procedures.

Unit 1 Technical Specification 3.7.A.5 and Unit 2 Technical Specification 3.6.6.4 require the primary containment atmosphere oxygen concentration to be less than 4 percent by volume. In order to provide operational flexibility, the Applicability sections of these specifications allow the oxygen concentration to be greater than 4 percent for short periods of time during plant startup or shutdown. Therefore, containment inerting can be performed during startup and deinerting can be performed during shutdown. During inerting, nitrogen is fed into the suppression chamber, thus increasing the pressure of the suppression chamber atmosphere. When the differential pressure between the suppression chamber and the drywell gets high enough, one or more vacuum breakers open, allowing the nitrogen to pass into the drywell and thus reducing the oxygen concentration. The drywell is then vented to maintain its pressure within acceptable limits. During deinerting the same process is used except air is fed into the suppression chamber, thus

increasing the oxygen concentration. Since these operations involve opening of the suppression chamber - drywell vacuum breakers, the plant is placed in a condition of being unable to meet the LCO of Unit 1 Technical Specification 3.7.A.4 or Unit 2 Technical Specification 3.6.4.1. This proposed change revises Unit 1 Technical Specification 3.7.A.4 and Unit 2 Technical Specification 3.6.4.1 to allow one or more vacuum breakers to be open during operations, such as inerting or deinerting, without the requirement to enter an Action statement or perform any subsequent surveillance other than verification that the vacuum breakers reclose. This verification will be required by plant procedures.

The requirement for all suppression chamber - drywell vacuum breakers to be closed ensures steam from a postulated LOCA is directed through the vent lines and is discharged under the water in the suppression chamber where it is condensed. An open vacuum breaker would provide a path between the drywell and the air space in the suppression chamber. Steam passing through an open vacuum breaker would not be condensed in the suppression chamber, and this could result in overpressurization of the primary containment. In order for an open vacuum breaker to provide a bypass leakage path, the vacuum breaker must be stuck open. The Technical Specifications bases for Technical Specification 3/4.6.4 state, "The vacuum breakers between the suppression chamber and the drywell must not be inoperable in the open position since this would allow bypassing of the suppression chamber in case of an accident." This is also true for Unit 1, although not stated in the Technical Specifications bases.

In the situations described above, the vacuum breakers are not stuck open or inoperable in the open position, but are opening per design in order to perform their intended function of relieving pressure from the suppression chamber to the drywell. The Unit 2 hydrogen recombiner functional test involves operating the recombiner for approximately 3 hours and is performed once per 6 months on each recombiner. Therefore, the total time vacuum breakers may be open for this reason is approximately 12 hours per year.

Since Unit 1 does not have a hydrogen recombiner system installed, the Unit 1 vacuum breakers would never be open for this reason. Since inerting and deinerting are only performed during plant startup and shutdown, vacuum breaker opening for this reason is also extremely infrequent. The probability of a LOCA occurring during one of these brief time periods is extremely small. Since the differential pressure increase is gradual for the above operations, it is expected that the degree of vacuum breaker opening is small. If a LOCA were to occur during this time, the resultant drywell pressure increase would force the vacuum breaker back to its closed position, thus eliminating the bypass leakage path. For these reasons, it is acceptable to allow one or more vacuum breakers to be open during surveillances or when performing their intended function.

Enclosure 2

Edwin I. Hatch Nuclear Plant
Request to Revise Technical Specifications
Suppression Chamber - Drywell Vacuum Breakers

10 CFR 50.92 Evaluation

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license does not involve a significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated; or

2. Create the possibility of a new or different kind of accident from any accident previously evaluated; or

3. Involve a significant reduction in a margin of safety.

Georgia Power Company has reviewed the proposed amendment and has determined its adoption would not involve a significant hazards consideration. The basis for this determination is given below.

Basis for Proposed No Significant Hazards Consideration Determination:

Evaluation of Proposed Change:

This change does not involve a significant hazards consideration for the following reasons:

1. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

   The accident of concern which requires vacuum breaker operability is the loss of coolant accident (LOCA). The requirement for all suppression chamber - drywell vacuum breakers to be closed ensures steam from a postulated LOCA is directed through the vent lines and is discharged under the water in the suppression chamber where it is condensed. If this steam avoids being condensed by traveling directly from the drywell to the suppression chamber air space through an open vacuum breaker, it could cause an unacceptable increase in containment pressure.

The Unit 2 hydrogen recombiner functional test involves operating the recombiner for 3 hours and is performed once per 6 months on each recombiner. Therefore, the total time any vacuum breaker may be open for this reason is approximately 12 hours per year. Since Unit 1 does not have a hydrogen recombiner system installed, the Unit 1 vacuum breakers would never be open for this reason. Since inerting and deinerting are only performed during plant startup and shutdown, vacuum breaker opening for this reason is also extremely infrequent. The probability of a LOCA occurring during one of these brief time periods is extremely small. Since the differential pressure increase is gradual for the above operations, it is expected that the degree of vacuum breaker opening is small. If a LOCA were to occur during this time, the resultant drywell pressure increase would force the vacuum breakers back to their closed position, thus eliminating the bypass leakage path. Since this proposed amendment will only allow vacuum breakers to be open for a very short period of time, and the vacuum breakers would close if required to do so, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

   The possibility of vacuum breakers being open and the effect this could have on containment response to a LOCA have already been analyzed. In this situation, the vacuum breakers will be opening to relieve differential pressure between the suppression chamber and the drywell. Thus, the vacuum breakers would be operating per design for the purpose of performing their intended function. Allowing vacuum breakers to be open under these circumstances will not result in any new modes of plant operation or create any new failure modes. Therefore, the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed amendment does not involve a significant reduction in the margin of safety.

   In the unlikely event a LOCA were to occur during the brief period of time the vacuum breakers are open, the resultant rapid increase in drywell pressure would cause the vacuum breakers to close. This would eliminate the bypass leakage path, and the containment pressure response to the LOCA would match the analyzed response. The resultant peak pressure would not exceed the design acceptance limit and the margin of safety would be unaffected. Therefore, the proposed amendment does not involve a significant reduction in the margin of safety.