



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 198 TO FACILITY OPERATING LICENSE DPR-57
AND AMENDMENT NO. 139 TO FACILITY OPERATING LICENSE NPF-5

GEORGIA POWER COMPANY, ET AL.

EDWIN I. HATCH NUCLEAR PLANT, UNITS 1 AND 2

DOCKET NOS. 50-321 AND 50-366

1.0 INTRODUCTION

By letter dated June 6, 1995, as supplemented August 9, 1995, Georgia Power Company, et al. (the licensee), proposed license amendments to change the Technical Specifications (TS) for the Edwin I. Hatch Nuclear Plant, Units 1 and 2. The proposed changes would revise TS Surveillance Requirements (SR) 3.6.4.1.3 and 3.6.4.1.4 for the secondary containment drawdown and reduce the SR acceptance criteria to greater than or equal to 0.20 inch water gauge (wg) negative pressure from greater than or equal to 0.25 inch wg negative pressure. Also, the licensee proposed to change the Bases which reflect the proposed TS changes. The August 9, 1995, letter provided clarifying information that did not change the scope of the June 6, 1995, application and the initial proposed no significant hazards consideration determination.

2.0 EVALUATION

2.1 LICENSEE'S PROPOSAL FOR SECONDARY CONTAINMENT NEGATIVE PRESSURE REDUCTION

The licensee stated that the secondary containment performs no active function in response to either design-basis loss-of-coolant accident (LOCA) or fuel handling accident (FHA). However, its leak tightness is required to ensure that the release of radioactive materials from the primary containment is restricted to those leakage paths and associated leakage rates assumed in the accident analysis and that fission products entrapped within the secondary containment structure will be treated by Units 1 and 2 standby gas treatment (SBGT) systems prior to discharge to the environment.

The LOCA and FHA dose analyses do not assume that the secondary containment is at a specific vacuum. The analyses conservatively assume that releases are unfiltered and occur at ground level prior to secondary containment drawdown, which is 120 seconds after the SBGT system initiation. Also, the analyses assume that the releases, except bypass leakage, are filtered by the SBGT system and occur at an elevated point after 120 seconds. The dose analysis dispersion factors are based on neutral to stable stability class conditions that maximize the calculated dose.

The consequences of the previously evaluated accidents are not affected because, at the wind conditions assumed in the accident analysis, the building will be at a negative pressure and no exfiltration is postulated.

Furthermore, the estimated wind speed of 31 mph at which exfiltration might take place is not a frequent occurrence at Plant Hatch. Wind speeds of greater than 24 mph occur less than 0.5% of the time based on the plant-specific meteorological data.

The change in the vacuum acceptance criteria results in a slightly lower wind speed that may result in exfiltration from the building. However, the 31 mph wind speed is infrequent at Plant Hatch. Furthermore, there are numerous conservatisms in the existing dose calculations including: neutral to stable meteorological conditions, ground level release until establishment of the required vacuum, accident source terms at event initiation, and no credit for plateout. The secondary containment would be maintained at a slight negative pressure shortly after the SBTG fans are running and the releases would be from the main stack (well before the accident source term would be present in the secondary containment). Some plateout would also occur and this is conservatively ignored.

2.2 STAFF POSITIONS ON SECONDARY CONTAINMENT NEGATIVE PRESSURE

The staff positions relating to secondary containment negative pressure are specified in Standard Review Plan (SRP) Sections 6.2.3 and 6.5.3. Typically, a secondary containment system has a design leakage rate of 100% per day at an internal pressure of 0.25 inch wg negative pressure under neutral wind conditions. In the event of a design-basis loss-of-coolant accident (LOCA), the secondary containment initially experiences a period of positive pressure due to transient heating effects and primary containment leakage. During this period, all primary containment leakage into the secondary containment is assumed (in dose calculations) to leak outward at ground level. This exfiltration period is assumed to last until a 0.25 inch wg negative pressure is established by the operation of the standby gas treatment (SBGT) system. At that time, the filtered and elevated release path is assumed to begin functioning and the secondary containment is assumed to begin leaking inward. The value of 0.25 inch wg negative pressure is normally incorporated into the TS as a test requirement for two related surveillances: (1) the secondary containment leakage tests, and (2) the SBGT system performance tests.

As noted in the SRP (CSB BTP 6-3), exfiltration of fission products would only occur under outward positive differential pressure conditions. However, the SRP considers a positive pressure as a pressure less than 0.25 inch wg negative pressure. This value is intended to account for wind effects and test measurement errors. Surveillance testing is assumed to be conducted under neutral wind conditions (i.e., less than 5 mph) using permanently installed, calibrated instruments subject to normal drift and calibration errors. When 0.25 inch wg negative pressure is used for the surveillance test acceptance criterion, it is reasonable to assume that under accident conditions with high winds, any true positive pressure within the secondary containment would end within the time frame specified for establishing the

negative pressure (typically 2 minutes), and no exfiltration would occur thereafter.

In Information Notice (IN) 88-76, the staff reported the discovery of a previously unknown temperature/elevation phenomenon affecting secondary containment performance. During winter conditions, delta-P instruments located at lower elevations will give non-conservative readings for secondary containment and SBT system surveillance tests. This phenomenon is due to the difference in density between air in the secondary containment and the outside air. In evaluating the licensee's request to change the surveillance test negative pressure criterion from 0.25 inch wg negative pressure to 0.20 inch wg negative pressure, the staff considered the plant-specific effects of wind and measurement errors including the IN 88-76 temperature/elevation effect. The staff verified that the revised surveillance test acceptance criterion would be adequate to preclude exfiltration by accounting for (1) wind, (2) instrument error, and (3) IN 88-76 phenomenon.

Wind: The licensee's supplemental information states that the 95% upper bound wind, which results in exfiltration, is 24 mph corresponding to a 0.12 inch water gauge negative pressure.

Instrument error: The licensee's supplemental information indicates that the maximum instrument error is ± 0.045 inch wg.

IN 88-76 Phenomenon: The licensee's supplemental information states that the secondary containment negative pressure surveillance testing at Hatch is being performed on a three-zone, multi-configurational basis (The Unit 1 reactor building is Zone I, the Unit 2 reactor building is Zone II, and the common refueling floor is Zone III). Each zone is tested using differential pressure instruments located within the zone being tested. A differential pressure instrument is available at the high-elevation refueling floor level. Because of this feature the IN 88-76 phenomenon is adequately accounted for by the surveillance tests.

The licensee also stated that recent surveillance test results indicate no significant pressure differentials among the secondary containment zones after test conditions have stabilized.

Based on the above considerations, the staff finds that a 0.20 inch wg negative test pressure is sufficient to ensure that fission product exfiltration from the secondary containment will be adequately controlled in a manner consistent with the bounding assumptions used in the calculations of radiological consequences of the fuel handling and design-basis LOCA accidents. Also, the staff finds that this change does not pose an undue risk to public health and safety. Therefore, it is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Georgia State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (60 FR 32364 dated June 21, 1995). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: William O. Long
Kahtan N. Jabbour

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