



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 95 TO FACILITY OPERATING LICENSE NO. NPF-29

ENERGY OPERATIONS, INC., ET AL.

GRAND GULF NUCLEAR STATION, UNIT 1

DOCKET NO. 50-416

1.0 INTRODUCTION

By letter dated May 4, 1990, Energy Operations, Inc., the licensee for Grand Gulf Nuclear Station, Unit 1, proposed to amend Technical Specification (TS) Table 3/4.3.2-2 to clarify the location of the area temperature and delta temperature isolation actuation instrumentation for the Reactor Water Cleanup (RWCU) system. In particular, the TS is being revised to indicate the location of the temperature isolation instrumentation from "RWCU Valve Nest Room" to "RWCU Hx Valve Nest Area" in Table 3.3.2.2 Sections 4.C.3 and 4.D.3.

In a letter dated January 16, 1990, the licensee committed to the above change in response to a Quality Deficiency Report (QDR) 239-89 dated July 18, 1989, which identified discrepancies between the pipe break assumptions and the actual plant instrumentation used to detect and isolate RWCU pipe breaks. In particular, the QDR identified that (1) the RWCU line break analysis relied on an isolation function time consistent with temperature instrument design (isolation time 60 seconds) for breaks detectable only by the flow instrumentation (isolation time 100 seconds) in those portions of the RWCU piping containing cold water (i.e., less than 120°F), and that (2) the RWCU Valve Nest Room did not contain area temperature and area delta temperature as listed in Table 3.3.2-2.

In its submittal, the licensee has provided the results of a new break analysis for those portions of the RWCU system which are dependent on the delta flow instrumentation to justify the change.

2.0 EVALUATION

The licensee indicated that TS requirements for the RWCU isolation instrumentation described in TS Table 3.3.2-2 Section 4 addresses leak detection instrumentation serving both "hot" process and "cold" process piping and components. The requirements on the RWCU "hot" process piping and components are both delta flow instrumentation and temperature (equipment area and equipment area delta) instrumentation. The requirement on the RWCU "cold"

(i.e., less than 120°F) process piping and component - delta flow instrumentation, only. The high area temperature and high area delta temperature isolation instrumentation for these areas are generally not effective for detection of leaks and were deleted from the TS in 1984 as part of TS Amendment No. 13 to prevent spurious operations. The licensee has indicated that in response to the QDR, the pipe break design analyses for those postulated "cold" RWCU break locations which are dependent on only the delta flow instrumentation for detection and automatic isolation were revised for isolation function time from 60 seconds consistent with temperature instrumentation to 100 seconds, consistent with delta flow instrumentation. The larger time delay associated with delta flow trip logic was not accounted for in the existing analysis. The new line break analysis was performed for the following areas:

- a. RWCU pipe chase inside the containment
- b. RWCU Valve Nest Room
- c. RWCU Holding Pump Room
- d. RWCU filter/demineralizer rooms A and B.

The licensee stated that from the results of the new RWCU line break analysis for the identified areas, the new isolation function time based on only the delta flow trip was determined to be acceptable since the higher resulting blowdown parameters are still well within existing design limits. This is based on more accurate assessment of the increased blowdown parameters affecting systems, structures, and components needed to mitigate the postulated RWCU line breaks and perform the required safe shutdown functions. This assessment included the dependent consequences such as room pressurization transients, environmental qualification profiles, etc. for not only the RWCU areas immediately affected but also for the adjoining areas up to and including the containment structure. The impact of flooding was found to be negligible. The offsite doses were also found to be much less than those already evaluated for the main steam line break outside containment event. The reactor vessel water level response to the postulated RWCU piping failures was evaluated as a mild event in comparison to the more limiting pipe breaks.

The licensee indicated that the new RWCU line break analysis does not affect any of the associated TS instrument operability requirements or setpoint values nor are any new TS requirements being imposed for the delta flow or "hot pipe" temperature instruments. The evaluation has shown that the line break detection and isolation functions for piping failures in the "RWCU Valve Nest Room" which contain only cold piping are adequately performed by the delta flow instrumentation and are consistent with other "cold" RWCU process component areas. Therefore, additional TS requirements for temperature monitoring the "RWCU Valve Nest Room" are not required. The temperature elements specified in the TS as being in the "RWCU Valve Nest Room" are actually installed in the "RWCU Hx Room Valve Nest Area". This discrepancy does not affect the analysis performed for the "RWCU Hx Room" and that the

temperature setpoints listed in TS are appropriate for the as-built configuration.

The staff has reviewed the licensee submittal as discussed above and finds the proposed TS change acceptable since reliance on the high delta flow instrumentation for detecting and isolating RWCU piping failures in the "cold" RWCU equipment rooms is supported by new analysis and meet all design functions. The proposed change does not affect plant safety as the new parameter values remain enveloped by the existing design.

Based on the above evaluation, the staff concludes that the licensee proposed change to TS Table 3.3.2-2 Sections 4.C.3 and 4.D.3 to revise the location of the RWCU area: temperature and delta temperature isolation instrumentation from "RWCU Valve Nest Room" to "RWCU Hx Valve Nest Area" and the isolation function time based on the delta flow instrumentation for isolation are acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Mississippi State official was notified of the proposed issuance of the amendment. The State official had no comment.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent 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 amendment involves no significant hazards consideration, and there has been no public comment on such finding (56 FR 47236). Accordingly, the amendment meets 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 amendment.

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: R. Goel

Date: April 13, 1992