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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

PLANT HATCH - UNIT 2
NRC DOCKET 50-366
OPERATING LICENSE NPF-5
REQUEST FOR TEMPORARY RELIEF FROM
ASME SECTION XI, IWA-5250 REQUIREMENTS

Gentlemen:

The purpose of this letter is to request temporary relief from ASME Section XI, IWA-5250 pressure testing requirements. The relief is needed because the non-safety related primary containment cooling units (Drywell Coolers) are experiencing minor leakage in a factory brazed joint at the header to flange connection in the cooler. Unit 2 is nearing the end of its Cycle 9 maintenance/refueling (M/R) outage, and because of the difficulty of repair and low safety significance, GPC requests relief from the Section XI requirements until the Fall 1992 M/R outage.

ASME Section XI, IWA-5250 can be interpreted to not allow resumption of operation with a through wall leak in a Class 1, 2, or 3 piping weld or braze, although portions of the code would appear to allow for the owner to evaluate such a condition. The drywell cooling system was built to Quality Group D (non-code), however, GPC has optionally classified the system to Class 2 for the purpose of Section XI inspection and testing.

The drywell cooling system coils are supplied with non-safety related chilled water, and the coolers are not required to operate following a postulated accident. The chilled water system is designed as a closed system inside primary containment with a single isolation valve outside containment for each penetration. The piping and coolers, therefore, become the inboard isolation boundary for the purpose of meeting General Design Criterion (GDC) 57 requirements. It is because the coolers are considered part of the containment boundary that GPC applies the testing requirements of ASME Section XI, for Class 2 components to this system.

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GPC has evaluated the leakage condition of the brazed joints and determined the condition does not represent a safety concern (see Enclosure 1) or degrade the structural integrity of drywell cooling system. The leakage observed from the joints is extremely small, even as compared to Appendix J requirements. Attempting to repair the leaking joints at this time is not desirable as described in the enclosed relief request (Enclosure 2). GPC requests your prompt consideration of this relief.

Please contact this office is you have questions.

Sincerely,

W. G. Hairston, III

GKM/cr

Enclosures

cc: Georgia Power Company
Mr. H. L. Sumner, General Manager - Nuclear Plant
Mr. J. D. Heidt, Manager Engineering and Licensing - Hatch
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. L. D. Wert, Senior Resident Inspector - Hatch

ENCLOSURE 1

PLANT HATCH - UNIT 2
NRC DOCKET 50-366
OPERATING LICENSE NPF-5
SAFETY ASSESSMENT OF LEAKING DRYWELL COOLERS

PURPOSE:

Primary Containment Cooling Units (Drywell Coolers) 2T47-B007A and B are experiencing leakage in a factory brazed joint at the header to flange connection in the cooler. This safety assessment justifies the continued operation of the drywell cooler system with this identified leakage until the coolers can be repaired in an orderly manner during the next scheduled maintenance/refueling (M/R) outage in the fall of 1992.

BACKGROUND:

The drywell cooling system consists of six (6) fan coil units and recirculating fans. The fan coil units and recirculation fans are automatically disengaged during a LOCA but may be restored to service manually by the operator. The cooling units are supplied with cooling water from the non-safety related chilled water system. Currently, several interfacing brazed joints between the chilled water process piping and the vendor supplied cooling coils are experiencing minor leakage. Site personnel have quantified this leakage by performing an operating pressure test, at between 0.5 to 2.0 ounces per hour (15 cc/hr to 60 cc/hr) per joint. Assuming 2.0 ounces per hour of leakage for each leaking joint, the maximum leakage on a daily basis is 3.0 gal/day. These connections were found to leak previously and were repaired using a temporary pipe sealant compound (Belzona).

The Chilled Water System which supplies cooling water to the drywell coolers is designed as a closed system inside primary containment and meets the criteria of GDC 57 (FSAR Section 3.1). Piping is 3" Seismic Category I, missile protected and Quality Group D. It is not required to operate following a postulated accident. Because this system is a closed system inside primary containment and functions as the inboard isolation barrier, FSAR Table 3.8-5 states that "the closed system is subject to the Inservice Inspection requirements of ASME Code, Section XI for Nuclear Class 3 piping". However, to better agree with the Inservice Inspection requirements of more recently licensed plants, which have systems with similar functions, Georgia Power Company has optionally classified the system as Class 2 for inspection and testing purposes. The inspection boundary includes all components within the Class 2 boundary as defined by the Repair and Replacement (R & R) diagrams.

A single remote isolation valve is provided outside containment and as close to the containment as practical on each supply and return line. The supply and return isolation valves (2P64-F045 and F047) are subjected to

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10 CFR 50, Appendix J, Type C testing. Following a LOCA, the system is designed to remain water filled. The system is tested with air to P_a during the Type C test.

JUSTIFICATION:

The results of the operating pressure test, which was conducted at normal system operating pressure, indicated minimal leakage from the brazed joint. This test, although conducted during an outage, is representative of the cooler conditions during power operation, since the system operation during reactor shutdown is identical to system operation at power. The pressure test is performed at 96 psig which is far in excess of P_a (57.5 psig). Some leakage apparently had been identified previously and improper (Belzona) repairs were attempted on the brazed joint to limit the quantity of leakage. However, these repairs have been unsuccessful in eliminating the leakage.

Based on previous leakage history, the magnitude of the leakage has not significantly increased and is not expected to increase over the next cycle of operation. Degradation, cracking, or fatigue in the joints is not evident from visual exams. It is likely this minor leakage condition has existed for some time, and was simply not detected. (Detection of such minor leakage would be difficult if the insulation around the joint had not been removed, or if the cooler fans were running.) In addition, there have been several instances of weeping at dissimilar metal brazed joints in the industry. However, even if a leak of sufficient magnitude should occur (i.e., gallons/min), the leakage would be detected via the safety grade drywell sump. Unit 2 Technical Specifications require frequent monitoring of the drywell floor drain sump. Significant leakage would also be evident from higher than normal makeup water addition to the chilled water expansion tank (2P64-A001). Thus, more than one means of leak detection is available to detect leakage of a magnitude which would affect operability of the coolers.

A review of the applicable design codes for the Chilled Water System has been performed to determine if the codes would prohibit operation with identified cooling water leakage. The design code for the chilled water system (2P64) is ANSI B31.1. However, as previously noted, the inspection requirements of ASME Section XI have been invoked for those portions of the closed system inside the primary containment. The inspection requirements of ASME Section XI for Class 2 piping require any source of leakage to be located and evaluated by the owner for corrective measures, and implies the leaking component be subsequently repaired or replaced. Note that it is also possible to interpret the Code as allowing leakage, provided the leakage is evaluated by the owner and deemed acceptable.

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As specified previously, valves 2P64-F045 and F047 are subjected to a 10 CFR 50, Appendix J, Type C leakage test. Valve F045 and valve F047 are tested simultaneously and thus a significant portion of the closed loop piping is included in the test boundary. Allowable air leakage for the valves is 360 accm. Type C testing conducted in 1989, 1990, and 1991 for these valves and associated penetrations indicated leakage of 90 accm, 75 accm, and 76 accm respectively. A significant margin exists (i.e., 270 accm) between the maximum leakage for the past three years and the allowable leakage. Therefore, the existing isolation valves are capable of isolating the coolers and maintaining the allowable leakage rate during accident conditions. Furthermore, the magnitude of the existing leakage from the coolers is insignificant (i.e., approximately 8 accm total, assuming 60 cc/hr for each connection, as verified by the system operating test) when compared to the allowable leak rate of 360 accm.

As added conservatism, the total leakage from coolers 2T47-B007A and B has been included in the combined leakage rate for all penetrations and valves for the current outage. This combined leakage is less than 0.6 L_a (Reference Technical Specification 3/4.6.1.2).

Finally, corrosion inhibitors are added to the chilled water system. The manufacturer of the corrosion inhibitor has determined the corrosivity of the evaporated product on galvanized or other metals on which the deposits rest will not adversely impact these materials.

CONCLUSIONS:

Operation of the drywell coolers (2T45-B007A and B) is acceptable until the next regularly scheduled refueling outage. This determination is based upon the ability to monitor significant leakage from the chilled water system, inclusion of the identified leakage from the operating pressure test in the combined leakage rate for all penetrations and valves subjected to a Type B and C test, the low leakage of the outboard isolation valves when subjected to the Type C test, no damage to galvanized or other metals on which the evaporated product rests, the historically low leakage of the valves and the adherence to the current Technical Specification with respect to combined overall leakage rate (i.e., less than or equal to 0.6 L_a).

ENCLOSURE 2

PROPOSED RELIEF REQUEST

3.1.4 REPAIR OF CHILLED WATER SYSTEM CONTAINMENT COOLER

3.1.4.1 Requirement From Which Relief is Requested

IWA 5250, Corrective Measures, requires the source of leakage detected during the conduct of a system pressure test (for Class 1, 2, or 3 components) to be located and evaluated by the Owner for corrective measures, and implies said components be subsequently repaired or replaced. During maintenance activities, leakage was detected emanating from a non-code containment cooler in a system which has been optionally classified as Class 2.

3.1.4.2 Basis for Relief

The Chilled Water System containment coolers and immediate piping are classified and designed as Quality Group D per Regulatory Guide 1.26 and, therefore, are not required per 10 CFR 50 or by IWA-1320 to be in the ASME Section XI program. However, because they are part of the containment boundary as defined in the FSAR, Georgia Power Company applies the testing requirements of ASME Section XI for Class 2 components to this system.

A safety assessment was performed to evaluate the leakage and the low safety significance of this leakage. This assessment is provided in Enclosure 1.

Furthermore, in-situ brazing of the drywell cooler is not practicable or prudent during this outage for the following reasons:

- The temperature required for this braze could overheat adjacent braze joints in the cooling tube to header joints.
- Contamination on the cooler header at the braze joint may be difficult to remove in place without removing interferences.
- There is no fallback repair procedure available if the first attempt fails.
- Other repair methods, such as welding or use of mechanical connections, may be preferred but have not been evaluated at this time.

3.1.4.3 Actions in Lieu of Code Requirements

Georgia Power Company will continue to inspect and test this system consistent with the currently optionally upgraded classification, and will repair this cooler during the currently scheduled Fall 1992 refueling outage.