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U. S. Nuclear Regulatory Commission
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SUBJECT: Arkansas Nuclear One - Unit 1
Docket No. 50-313
License No. DPR-51
Reactor Building Coolers

Gentlemen:

This letter is provided as a follow-up to telephone conversations held with Messrs Tom Alexion, Tom Westerman and other members of the NRC staff on December 13, 1990. The purpose of these conversations was to discuss our operating philosophy with respect to reactor building coolers and the corresponding ANO-1 Technical Specification requirements and design basis assumptions for post accident reactor building cooling. The following reflects the agreement reached with the NRC staff on this issue.

ANO-1 is currently in the ninth refueling outage (1R9). Recently several leaks were discovered in the Loop 2 "C" and "D" reactor building coolers. The attached Figure 1 shows the design of the coolers. There are a total of four essentially identical coolers, two per service water loop. Each cooler has eight coils (four-12 row and four-8 row coils). Prior to this refueling outage a leak was detected in VCC-2D which was temporarily corrected at that time by blanking off the leaking coil. During the refueling outage, we chemically cleaned the service water system. During cleaning, leakage was detected in the C cooler. All the reactor building cooler coils were hydro tested following the cleaning. During these tests leaks were identified in both the C and D coolers. Three coils in the C and one in the D cooler were replaced and one coil in the C and one coil in the D cooler were blanked. The units were then reassembled. Subsequently, additional leaks were discovered in both the C and D coolers. All of the subsequent leaks occurred where the carbon steel nozzle is brazed to the cooling coil copper header. It is believed that these leaks were primarily the result of the repair activity and difficulty in piping manifold fitup. By depleting our available stock, we will replace four coils in each of the C and D coolers. In VCC-2D we will replace all four of the 12 row coils and in VCC-2C we will replace all four of the 8 row coils. Since these coolers represent a primary containment pressure boundary we plan to blank off all the coils in the C and D coolers which have not been replaced. This will reduce any potential for future leakage. In the as left configuration, with 1200 gpm of service water at a design basis temperature of 95°, split between the two coolers, VCC-2C and VCC-2D in combination will remove greater than the design basis heat load for a single cooler.

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Therefore, to continue complying with Technical Specifications 3.3.4(A) and 3.3.7(F), a cooling unit for Loop 2 shall be considered to be both the C and D coolers and their associated fans. If either the C or D cooling units becomes inoperable due to a fan failure or if further heat transfer area is lost to the extent that the combined cooler performance is reduced to less than that assumed in the accident analysis, Loop 2 of reactor building coolers shall be declared inoperable and the actions required by specification 3.3.7(F) followed (i.e. restore the inoperable group of reactor building emergency cooling units to operable status within 7 days of initial loss or be in at least hot shutdown within the next 6 hours and in cold shutdown within the following 30 hours).

The above approach is consistent with our current operating philosophy. The reactor building coolers in conjunction with reactor building spray and decay heat removal coolers reduce the post accident reactor building pressure and temperature. The limiting safety analysis assumes the heat removal characteristic of one operable reactor building spray train, one decay heat removal cooler and one reactor building cooler. The two loop coolers are provided service water in parallel from a common service water header as shown in Figure 2. There are no isolation valves to divert service water to a specific cooler. Therefore, both coolers per loop operate as a group. The flow through the two loop coolers is combined to meet Technical Specification surveillance requirement 4.5.2.1.2, which requires the group flow rate to be greater than 1200 gpm. In the past if either of the units became inoperable we entered the seven day action statement and either repaired the problem or verified that adequate flow was diverted to the operable cooler.

Entergy Operations will submit a proposed change to the Technical Specifications within the next 30 days to provide clarification regarding this Technical Specification and its Basis. Additionally, the blanked off coils will be repaired at the next outage of sufficient duration following receipt of replacement coils. We have been informed that the delivery schedule for these "Q" heat exchangers is greater than 6 months.

Should you have any further questions on this issue please contact my office.

Very truly yours,

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JJF/DEJ/sgw
Attachment

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Figure 1

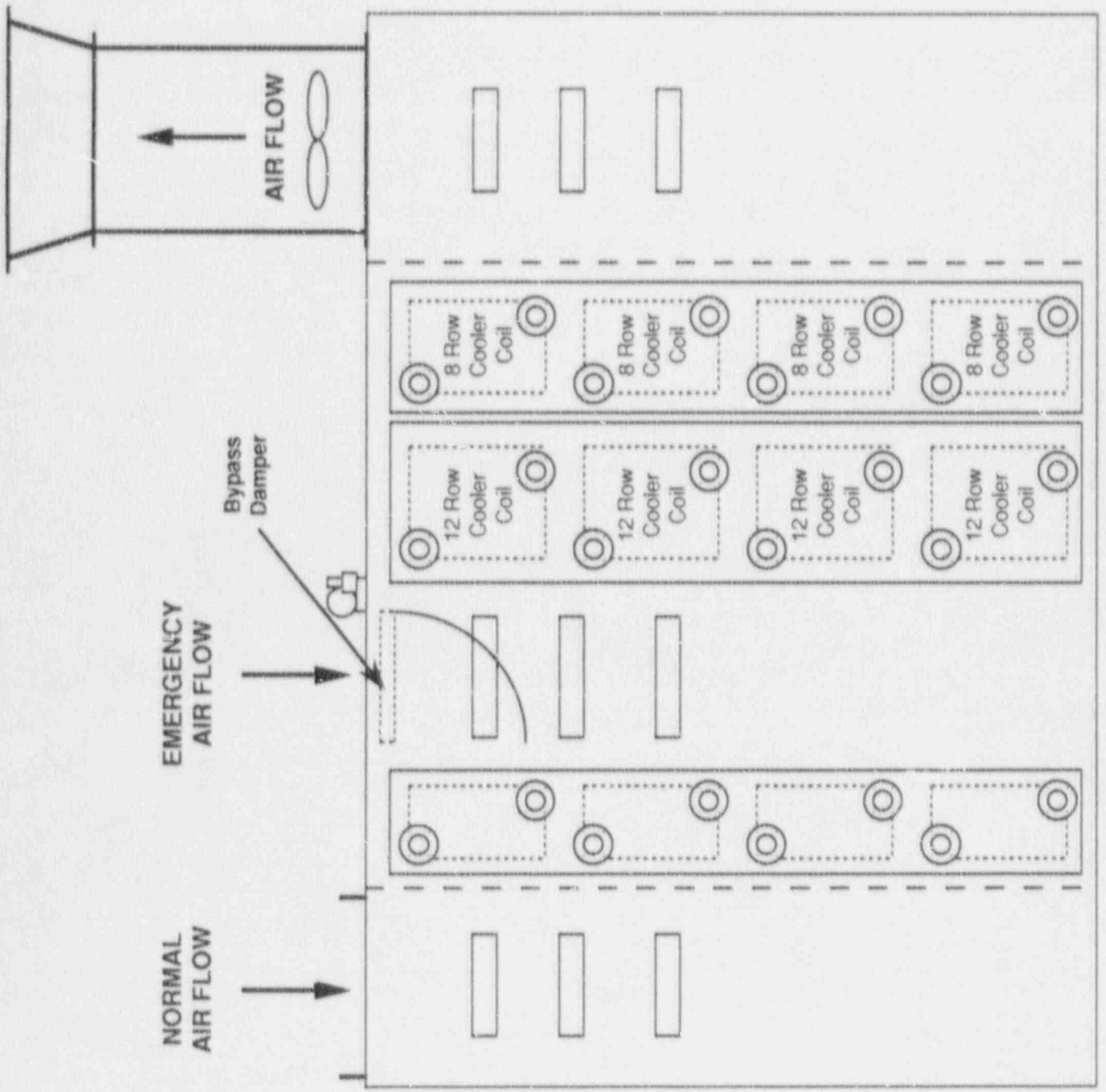

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Figure 2