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September 3, 1982

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Station Units 1 and 2
Braidwood Station Units 1 and 2
Containment Sump and Atmosphere
Temperature Monitoring
NRC Docket Nos. 50-454, 50-455,
50-456, and 50-457

Dear Mr. Denton:

This is to provide information which will be added to the Byron/Braidwood FSAR regarding temperature monitoring of the containment recirculation sump and atmosphere. NRC review of this information should close Confirmatory Issue 18 of the Byron SER.

Attachment A to this letter contains our response to FSAR question 022.8. It justifies the approach we have taken to monitoring the temperature of the containment sump and atmosphere with regard to the Regulatory Position expressed in Revision 2 of Regulatory Guide 1.97.

This information will be added to the FSAR at the earliest opportunity. Please address questions regarding this matter to this office.

One signed original and fifteen copies of this letter are provided for your review.

Very truly yours,

E. Douglas Swartz

for T. R. Tramm
Nuclear Licensing Administrator

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Attachment A

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ATTACHMENT A

BYRON/BRAIDWOOD

CONTAINMENT SUMP AND ATMOSPHERE TEMPERATURE MONITORING

Regulatory Position

For PWR's Regulatory Guide 1.97, Rev. 2, identifies containment sump temperature and atmosphere temperature as important parameters for post-accident monitoring. Both are categorized as Type D parameters in accordance with ANS-4.5 because they are parameters that provide information to indicate the operation of individual safety systems and other systems important to safety. Containment atmosphere temperature is to be measured in the range 40°F to 400°F to indicate the accomplishment of cooling. Containment sump water temperature is to be measured in the range of 50°F to 250°F, apparently to verify the adequate NPSH for RHR and CS pumps during recirculation. Design and qualification of this instrumentation is to be Category 2 as defined in Reg. Guide 1.97.

Byron/Braidwood Alternative

The Byron design provides instrumentation adequate for operator monitoring of the containment cooling function. Parameters monitored include RCFC air inlet and outlet temperature (dewpoint and dry bulb), RCFC water inlet and outlet temperature, containment pressure, and containment spray flow. This instrumentation is generally classified as Category 3 equipment per Regulatory Guide 1.97. Temperature indication in other areas of the containment atmosphere would not provide information useful to the operator in decisions regarding the operation of containment cooling equipment.

Containment sump water temperature indication, in conjunction with containment pressure indication, would only be useful to the operator to determine if adequate NPSH was available to the CS or RHR pumps when in the recirculation mode. However, by design, cavitation of these pumps will not occur even if the water reaches containment saturation temperature. The B/B design complies with NRC Reg. Guide 1.1 which states that "Emergency core cooling and containment heat removal systems should be designed so that adequate net positive suction head (NPSH) is provided to system pumps assuming maximum expected temperatures of pumped fluids and no increase in containment pressure from that present prior to postulated loss of coolant accidents." Containment sump water temperature is therefore not a parameter required to indicate proper operation of the CS or RHR systems when in the recirculation mode.