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April 19, 1985
RBG- 20779
File Nos. G9.5, G9.25.1.1

Mr. Robert D. Martin, Regional Administrator
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76011

Dear Mr. Martin:

River Bend Station Unit 1
Docket No. 50-458
Final Report/DR-117

On September 30, 1983, GSU provided Region IV with a final report on DR-117 concerning a previously unanalyzed containment negative pressure scenario. On April 17, 1985, GSU notified Region IV that DR-117 was determined to be reportable under 10CFR50.55(e). The attachment to this letter is GSU's final 30-day written report pursuant to 10CFR50.55(e)(3) with regard to this deficiency.

Sincerely,

J. E. Booker

J. E. Booker
Manager-Engineering,
Nuclear Fuels & Licensing
River Bend Nuclear Group

JEB/PJD/lp

Attachment

cc: Director of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC Resident Inspector-Site

INPO

85-242

IE-27

ATTACHMENT

April 19, 1985
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DR-117/Unanalyzed Containment
Low Air Mass Scenario

Background and Description of the Problem

This deficiency concerns a previously unanalyzed containment negative pressure transient caused by a low air mass scenario suggested by a former General Electric Containment Lead System Engineer (c.f. Humphreys Issue 8.4). The event sequence which could cause a low containment air mass is a high energy reactor water clean up (RWCU) line break while the containment purge system is in exhaust operation with the purge supply inadvertently isolated (single failure). The steam introduced into the containment displaces some of the airmass before containment isolation occurs. Containment unit coolers and heat sinks condense the water vapor fairly rapidly and at minus 12 inches of water, the containment unit coolers isolate and further reduction in containment pressure proceeds as the containment heat sinks continue to condense the steam.

Safety Implication

FSAR Section 6.2.1 Table 6.2-1, indicate that the containment external (negative) design pressure is 0.6 psig. The containment response was analyzed (SWEC calculation 12210-ES-182-0) using SWEC computer code THREED to simulate the worst case bounding scenario of a RWCU line break with the containment purge supply isolated and the containment purge exhaust operating. The results of the analysis indicated that the containment negative design pressure of minus 0.6 psig will be exceeded by minus 1.1 psig. The containment design capacity to withstand negative pressures has been determined to be minus 1.8 psig, which is greater than the maximum calculated negative pressure of minus 1.7 psig. However, GSU conservatively assumes that had this condition remained uncorrected, the safe operations of the plant may have been adversely affected sometime during the life of the plant.

Corrective Action

All scenarios which might result in reduced containment air mass have been developed and evaluated. (c.f. RBG-19,972 dated 1/23/85 from GSU (Booker) to NRC (Denton).) Engineering and Design Coordination Reports P40,892A and P41,018B have been issued to modify the design to interlock the containment purge exhaust valves (1HVR*AOV128 and 1HVR*ADV166) to insure that the exhaust valves will automatically close whenever the supply valves are signalled to close. This prevents the aforementioned low air mass scenarios from occurring and preserves the original containment design basis of minus 0.6 psig.