



Entergy Operations, Inc.
River Bend Station
P.O. Box 220
St. Francisville, LA 70775

August 4, 1994

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

Subject: Response to NRC Bulletin 93-03, Reference Leg Hardware Modification
Summary
File Nos.: G9.5, G9.33.1, G9.33.4

RBG-40781

Gentlemen:

As required by NRC Bulletin 93-03, please find attached a summary of the reference leg hardware modification for Entergy Operations, Inc's River Bend Station. This modification added a continuous backfill system for the safety-related reactor pressure vessel instrument reference legs. The modification was completed on July 5, 1994.

Should you have any questions, please contact Mr. O. P. Bulich at (504) 336-6251.

Sincerely,

James J. Fisicaro
Director - Nuclear Safety

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enclosures

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Reference Leg Hardware Modification Summary
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cc: U.S. NRC Regional Administrator
Region IV
611 Ryan Plaza Drive, Suite 400
Arlington, TX 76011

NRC Senior Resident Inspector
P.O. Box 1051
St. Francisville, LA 70775

Mr. Robert Schaff
U.S. NRC
Mail Stop O13-H-3
Washington, DC 20555

BEFORE THE
UNITED STATES NUCLEAR REGULATORY COMMISSION

LICENSE NO. NPF-47

DOCKET NO. 50-458

IN THE MATTER OF
GULF STATES UTILITIES COMPANY
CAJUN ELECTRIC POWER COOPERATIVE AND
ENTERGY OPERATIONS, INC.

AFFIRMATION

I, James J. Fisicaro, state that I am the Director-Nuclear Safety of Entergy Operations, Inc., at River Bend Station; that on behalf of Entergy Operations, Inc., I am authorized by Entergy Operations, Inc. to sign and file with the Nuclear Regulatory Commission, NRC Bulletin 93-03, Reference Leg Hardware Modification confirmation of completion and description, that I signed this request as Director-Nuclear Safety at River Bend Station of Entergy Operations, Inc.; and that the statements made and the matters set forth therein are true and correct to the best of my knowledge, information, and belief.

James J. Fisicaro
James J. Fisicaro

STATE OF LOUISIANA
WEST FELICIANA PARISH

SUBSCRIBED AND SWORN TO before me, a Notary Public, in and for the Parish and State above named, this 4th day of August, 1994.

(SEAL)

Claudia J. Hurst
Notary Public

ATTACHMENT

MODIFICATION DESCRIPTION

In response to NRC Bulletin 93-03, Modification Request (MR) 93-0034 was implemented which added a continuous backfill system to four safety-related reactor pressure vessel (RPV) instrument reference legs. Post-modification testing of the system indicated satisfactory operation. The function of the backfill system is to purge dissolved non-condensable gases from the reference leg fluid to prevent gas-induced level errors during reactor coolant system depressurization. This modification resolved the issues described in Generic Letter 92-04 and Bulletin 93-03 concerning level errors created by non-condensable gas dissociation.

The hardware modification consists of tubing, filters, and valves necessary to route the process fluid from the control rod drive (CRD) system to a low point in the RPV instrument reference legs. Process fluid flows from the CRD system into the reactor pressure vessel due to the higher CRD pressure. The continuous flow eliminates transportation of non-condensable gases from the condensing chamber into the reference leg.

There are two filters downstream of the CRD system tie-in to prevent clogging of the flow restrictor and fouling of the check valve seats. The flow restrictor and check valves are discussed below. The two filters are in parallel with one in standby, thus allowing filter replacement without disrupting backfill flow. Downstream of the filters and bypass valve, the system branches into two ring headers each supplying two instrument racks (one rack per channel).

Each instrument rack contains a flow restrictor to control flow from about 4 lbm/hr [.008 gpm] to 6 lbm/hr [.012 gpm]. Nominal system flow is 0.032 gpm. Nominal flow for each reference leg channel is .008 gpm. A metering valve was installed in-line with the flow meters to prevent perturbations caused by start-up surges.

Downstream of the flow restrictor are two seismically qualified Category I check valves. These valves are in series and serve as the safety-related boundary between the non-safety CRD system and the safety-related reactor pressure vessel reference legs.

Components associated with the backfill system are located in the containment building. These components are constructed and supported (seismically) to meet or exceed the requirements of the USAR.