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July 15, 1985
RBG- 21,559
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

RECEIVED
JUL 22 1985

Dear Mr. Martin:

River Bend Station - Unit 1
Docket No. 50-458
Final Report/DR-318

On July 12, 1985, GSU notified Region IV by telephone that it had determined DR-318 concerning air-operated damper shaft bushings for ductwork supplied by Quality Air Design 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/amg

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

NRC Resident Inspector-Site

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ATTACHMENT

July 15, 1985
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DR-318/AIR-OPERATED DAMPER
SHAFT BUSHINGS

Background and Description of the Problem

The deficiency concerns air-operated damper shaft bushing problems associated with ductwork supplied by Quality Air Design as identified in Nonconformance and Disposition Report (N&D) No. 12,085:

1. Bushings moving completely out of the damper frame when the damper is cycled.

2. Bushings receding back into the damper frame when the damper is cycled.

3. Bushings rotating within the frame hole when the damper is cycled.

In addition, N&D No. 12,353 identified a bushing that was found to be split.

During a walkdown of the ductwork prior to performing the ductwork pressure test, it was observed that damper shaft bushings were either receding back into the damper frame or totally disengaged from the damper frame on dampers 1HVR*AOD18B, 1HVR*AOD262, and 1HVR*AOD214. As a result of this, an additional walkdown was performed on various ductwork systems, and it was determined that the following dampers exhibited the same problems:

1HVR*AOD249
1HVR*AOD10B
1HVR*AOD162
1HVC*AOD43B
1GTS*AOD1B
1HVC*AOD3A and 3B
1HVC*AOD19B, C, and D

When the damper bushing recedes out of the damper frame, the damper shaft will lay on the damper frame. The diameter of the hole in the frame is 1/4 in. larger than that of the bushing. This will cause misalignment of the damper shaft. The damper blades are the opposed blade type, and this misalignment will not allow the blades to closed and seat properly.

The supplier of the damper bushings requires in its installation instructions that the hole on the damper frame be reamed such that the size between the outside diameter of the bushing and the inside diameter of the frame hole be limited to a 0.002- to 0.003-inch interference fit. The damper vendor did not follow the supplier's installation instructions. This was verified by a physical field inspection which determined that an interference fit did not exist on some of the above dampers.

SAFETY IMPLICATION

All safety-related air-operated dampers either maintain secondary containment integrity or provide isolation for redundant safety-related equipment ventilation and charcoal filtration systems. Failure of any of these dampers to close and seat properly could affect any of the following:

1. The ability of the ventilation and cooling systems to supply the required amount of air to provide the environment to support equipment qualification. This could result in the possible failure of safety-related equipment required for safe shutdown of the reactor.

2. The ability of the charcoal filtration systems to maintain the fuel and auxiliary buildings at a negative pressure following an accident which would violate secondary containment. This could result in higher offsite doses affecting the safety of the public.

3. The ability to maintain the control room at a positive pressure following an accident. This could result in higher control room doses.

Thus, the safe operations of the plant could be adversely affected by this condition.

CORRECTIVE ACTION

A damper was removed from a ductwork system for testing. This damper was cycled, and two bushings were observed to move completely out of the frame. The remainder of the bushings exhibited some movement out of the frame. Therefore, the extent of the problem has been conservatively assumed to occur on all safety-related air-operated damper bushings. Engineering and Design Coordination Report No. C-15,266 has been issued to address all dampers not listed on N&D No. 12,085.

Bushings that are recessed slightly into the frame or flush with the frame will be reinstalled as shown on the vendor drawing. The bushings will be tapped out of the frame approximately 3/16 in. An adhesive (Loctite 680) will be applied to adhere the bushing to the frame, and the bushing will then be tapped back into the frame. Bushings that are secure in place and do not move with a slight tapping will have the adhesive applied at the corner of the bushing flange and the frame to strengthen the existing installation. Bushings that protrude through the frame will have the adhesive applied around the perimeter of the bushing.

The above method was applied to the previously mentioned test damper and cycled 500 times (approximate cycling of damper over 40-year plant life). The bushings maintained their integrity in the frame without receding or moving with the shaft. All dampers, after repair, will be cycled a minimum of 15 times to ensure operability. Loctite 680 is environmentally qualified for the 40-year plant life.

All safety related air operated dampers associated with the control building ventilation, air conditioning, and charcoal filtration systems will be repaired prior to fuel loading.

All safety-related dampers associated with the fuel building, auxiliary building ventilation, and charcoal filtration systems and with secondary containment integrity will be repaired prior to initial criticality. The systems which contain these dampers are not required to be operable prior to reactor startup in accordance with the Technical Specification Section 3.4.6.5. The anticipated completion date for repairing these dampers is August 15, 1985.

All other safety-related air-operated dampers (approximately 53 dampers) required to function during normal operation and to maintain temperatures and humidity for equipment qualification will be repaired prior to fuel loading.