

GULF STATES UTILITIES COMPANY

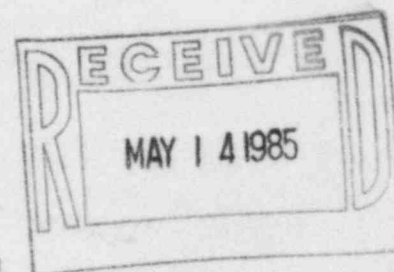
RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775
AREA CODE 504 635-6094 346-8651

May 8, 1985
RBG- 20938
File No. 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-225



On January 21, 1985, GSU provided Region IV with a final 30-day written report on DR-225 concerning the motor torque specified for motor-operated valves supplied by Velan Engineering, Ltd. The attachment to this letter is GSU's revised final written report pursuant to 10CFR50.55(e)(3) with regard to this deficiency.

Sincerely,

L. A. England

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

^{RJD}
JEB/PJD/amg

Attachment

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

NRC Resident Inspector-Site

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ATTACHMENT

May 8, 1985
RBG- 20938

DR-225/Motor Torque Specified for Motor-Operated Valves Supplied by Velan Engineering, Ltd.

Background and Description of the Problem

The motors of certain motor-operated valves (MOVs) were supplied by Velan Engineering, Ltd. with higher stall torques than required by the MOV specifications as identified on Nonconformance and Disposition Report (N&D) Nos. 5678, 6704, 6922, and 8101. Valve 1E12*MOV003A with an SMB3 operator was supplied with a motor having a stall torque of 80 ft/lb instead of the specified 60 ft/lb. This problem was originally documented on N&D No. 5678, and the disposition was later revised on N&D No. 6704. All valves supplied by Velan were reviewed for this deficiency.

While resolving the problem of the 80-ft/lb motor, it was discovered that valves 1E12*MOV003B and 1E12*MOV048A and B, as supplied with 60-ft/lb motors, exceed the valve safety limit.

Safety Implication

Valves 1E12*MOV003A and B are the heat exchanger outlet valves for residual heat removal (RHR) system loops A and B, respectively. These valves permit flow through the RHR heat exchanger during RHR shutdown cooling, alternate shutdown cooling, and post-LOCA suppression pool cooling. Valves 1E12*MOV048A and B are the heat exchanger bypass valves for loops A and B, respectively. These valves require and/or allow flow of the low-pressure coolant injection (LPCI) portion of RHR during/after a LOCA, a plant emergency core cooling event.

Had the oversizing of these valve motors remained uncorrected a potential mechanical failure mode would have existed (i.e., valve damage or pressure boundary failure, if stall conditions were reached during valve operations) in both RHR cooling loops (these are also LPCI loops A and B), which then would not be available to perform the following safety-related functions:

1. LPCI
2. Post-LOCA suppression pool cooling

The loss of post-LOCA suppression pool cooling would result in the inability to remove decay and residual heat from the containment. Since the containment unit coolers are not designed to cool the containment without the aid of suppression pool cooling, containment design temperature and pressure could be exceeded.

Corrective Action

In order to prevent this condition, Velan Engineering, Ltd. (Velan), suggested reducing the maximum operating differential pressure from 500 psi to 250 psi to allow a reduction in the size of the motor to 40 ft/lb. The motor change, combined with the modification of internal gearing, reduces the present gear ratio and will bring stall torque at 100-percent and 110-percent voltage within the safety limits of the valves. However, Velan informed SWEC that Limitorque discontinued using SMB3 units with 40-ft/lb motors, which were to replace 60-ft/lb and 80-ft/lb motors; as such, complete SMB2-40 actuators will be used as replacements for presently installed acutators.

Engineering and Design Coordination Report (E&DCR) No. P-12,920A was initiated on August 13, 1984, reducing the maximum operating differential pressure of the valves to 250 psi, thus allowing for a reduced thrust requirement to operate the valves. Because the pressure acts under the seats of the valves, the pressure difference assists valve opening.

The operators for valves 1E12*MOVF003A and 3B were replaced in accordance with N&D No. 8101. The operators for valves 1E12*MOV48A and 48B were replaced in accordance with E&DCR No. P-12,920C.