



**GULF STATES UTILITIES COMPANY**

POST OFFICE BOX 2951 • BEAUMONT, TEXAS 77704

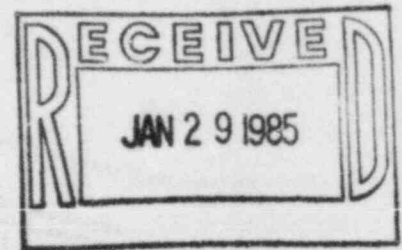
AREA CODE 409 838 6831

January 21, 1985  
RBG-19963  
File Nos. G9.5, G9.25.1.1

Mr. Robert D. Martin, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region IV, Office of Inspection and Enforcement  
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 December 21, 1984, GSU notified Region IV by telephone that it had determined DR-225 concerning the motor torque specified for motor-operated valves supplied by Velan Engineering, Ltd. 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).

Sincerely,

*L. A. England*

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

*JEB*  
JEB/HJD/lp

Attachment

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

NRC Resident Inspector-Site

INPO

8502070051 850121  
PDR ADOCK 05000458  
S PDR

IE-27  
1/1

## ATTACHMENT

January 21, 1985  
RBC-19963

### 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\*MOVFO03A 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.

While resolving the problem of the 80-ft/lb motor, it was discovered that valves 1E12\*MOVFO03B and 1E12\*MOVFO48A and B, as supplied with 60-ft/lb motors, exceed the valve safety limit. Although torque switches are used to prevent this occurrence, had torque switch failure occurred, the safety limit of the valves would have been exceeded.

#### Safety Implication

Valves 1E12\*MOVFO03A 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\*MOVFO48A 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 undiscovered, a potential mechanical failure mode would have existed (if stall conditions were reached during valve closure) 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

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.

The operators for valves 1E12\*MOVFO03A and 3B were replaced in accordance with N&D No. 8101. E&DCR No. P-12,920C will be issued to replace the operators for valves 1E12\*MOVFO48A and 48B.

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 actuators.