

LICENSEE EVENT REPORT (LER)

|   |  |                    |
|---|--|--------------------|
| FACILITY NAME (1)<br>River Bend Station | DOCKET NUMBER (2)<br>0 5 0 0 0 4 5 8 1 | PAGE (3)<br>1 OF 4 |
|---|--|--------------------|

TITLE (4)  
Inadequate Bolting on Motor Operated Valves

| EVENT DATE (5) |     |      | LER NUMBER (6) |                   |                 | REPORT DATE (7) |     |      | OTHER FACILITIES INVOLVED (8) |   |                  |   |   |   |   |   |   |   |  |  |   |   |   |   |   |
|----------------|-----|------|----------------|-------------------|-----------------|-----------------|-----|------|-------------------------------|---|------------------|---|---|---|---|---|---|---|--|--|---|---|---|---|---|
| MONTH          | DAY | YEAR | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER | MONTH           | DAY | YEAR | FACILITY NAMES                |   | DOCKET NUMBER(S) |   |   |   |   |   |   |   |  |  |   |   |   |   |   |
| 0              | 1   | 0    | 5              | 8                 | 6               | 8               | 6   | 0    | 0                             | 3 | 0                | 0 | 0 | 5 | 1 | 4 | 8 | 6 |  |  | 0 | 5 | 0 | 0 | 0 |

|                         |   |                  |                     |  |  |  |  |  |  |  |
|-------------------------|---|------------------|---------------------|--|--|--|--|--|--|--|
| OPERATING MODE (9)<br>2 | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11) |                  |                     |  |  |  |  |  |  |  |
| POWER LEVEL (10)        | 20.402(b)   | 20.408(a)        | 90.73(a)(2)(iv)     | 73.71(b)   |  |  |  |  |  |  |
|                         | 20.408(a)(1)(i)   | 90.38(a)(1)      | 90.73(a)(2)(v)      | 73.71(a)   |  |  |  |  |  |  |
|                         | 20.408(a)(1)(ii)  | 90.38(a)(2)      | 90.73(a)(2)(vi)     | OTHER (Specify in Abstract below and in Text, NRC Form 308A) |  |  |  |  |  |  |
|                         | 20.408(a)(1)(iii)   | 90.73(a)(2)(i)   | 90.73(a)(2)(vii)(A) |  |  |  |  |  |  |  |
|                         | 20.408(a)(1)(iv)  | 90.73(a)(2)(ii)  | 90.73(a)(2)(vii)(B) |  |  |  |  |  |  |  |
|                         | 20.408(a)(1)(v)   | 90.73(a)(2)(iii) | 90.73(a)(2)(x)      |  |  |  |  |  |  |  |

LICENSEE CONTACT FOR THIS LER (12)

|                                 |   |
|---------------------------------|---|
| NAME<br>W. J. Herman - Engineer | TELEPHONE NUMBER<br>5 0 4 6 3 5 - 1 6 1 0 1 9 4 |
|---------------------------------|---|

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPROS | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NPROS |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
|       |        |           |              |                     |       |        |           |              |                     |
|       |        |           |              |                     |       |        |           |              |                     |

SUPPLEMENTAL REPORT EXPECTED (14)

|  |  |  |
|--|--|--|
| <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) | <input checked="" type="checkbox"/> NO | EXPECTED SUBMISSION DATE (15)<br>MONTH:    DAY:    YEAR: |
|--|--|--|

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On 1/5/86 at 1600 with the unit in startup, an operator attempted to open feedwater isolation valve 1FWS\*4OV7B, but the electrical breaker tripped. The breaker was reset several times but tripped each time the valve was actuated. A short time later the valve actuator was found lying on the floor by Radiation Protection personnel on their rounds in the main steam tunnel. Evaluation of the failure indicated that the mounting bolts had pulled out of the actuator casting due to inadequate thread engagement and/or loose bolts. As an interim measure, all actuator mounting bolts for valves with the same model actuator or with motors 6 HP and larger were checked for loose bolts. Also longer bolts were installed where required to increase the thread engagement. Upon completion of these actions and repair of the 1FWS\*MOV7B actuator the unit resumed testing at power levels below 35 percent.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

|   |  |                |                   |                 |          |    |     |
|---|--|----------------|-------------------|-----------------|----------|----|-----|
| FACILITY NAME (1)<br><br>River Bend Station | DOCKET NUMBER (2)<br><br>0 5 0 0 0 4 5 8 8 6 | LER NUMBER (6) |                   |                 | PAGE (3) |    |     |
|   |  | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |    |     |
|   |  | 8 6            | 0 3 0             | 0 0             | 0 2      | OF | 0 4 |

TEXT (If more space is required, use additional NRC Form 366A's) (17)

REPORTED CONDITION

On 1/5/86 at 1600 with the unit in operational condition 2 (startup/hot standby), an operator attempted to open the feedwater isolation valve (1FWS\*MOV7B), but the electrical breaker tripped. The breaker was reset several times but tripped each time the valve was actuated. A short time later the valve actuator was found lying on the floor by Radiation Protection personnel on their rounds in the main steam tunnel. 1FWS\*MOV7B is a 20 inch Velan valve with an SMB4 Limatorque actuator.

EVALUATION AND INITIAL CORRECTIVE ACTION

Evaluation of the failure indicated that the mounting bolts had pulled out of the actuator casting due to inadequate thread engagement and/or loose bolts. As an interim measure, all actuator mounting bolts for valves with the same model actuator (SMB4 Limatorque) or with motors 6 HP and larger were checked for loose bolts. Also longer bolts were installed on SMB4s where required to increase the thread engagement. Upon completion of these actions and repair of the 1FWS\*MOV7B actuator the unit resumed testing at power levels below 35 percent.

FURTHER INVESTIGATION, INSPECTION AND REWORK

On 1/23/86 an inspection and rework program was initiated to check the actuator mounting bolts for all safety related motor actuated valves except SMB4s which had been previously inspected and reworked.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

|   |  |                |                   |                 |          |       |
|---|--|----------------|-------------------|-----------------|----------|-------|
| FACILITY NAME (1)<br><br>River Bend Station | DOCKET NUMBER (2)<br><br>0 5 0 0 0 4 5 8 8 6 | LER NUMBER (6) |                   |                 | PAGE (3) |       |
|   |  | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER |          |       |
|   |  | 86             | 030               | 00              | 03       | OF 04 |

TEXT (If more space is required, use additional NRC Form 366A's) (17)

Both torque and thread engagement were verified as correct or reworked to meet the requirements of the valve design documents. Out of 289 bolted joints checked on 250 valves (39 valves had adaptor plates which were also checked), 35 had short bolts and 255 had loose bolts. Valves supplied by Velan, Anchor Darling, Jamesbury, Posi Seal and Gimpel were included in the survey which was concluded on 2/25/86.

EVALUATION OF FINDINGS

There appeared to be no pattern to the loss of torque. Valve supplier, operator type, lockwashers, or previous rework of the joint during the construction phase did not correlate to the torque loss. It appeared that the primary contributors to the problem were the dissimilar tensile strengths of the actuator casting and the bolting materials, vibration, thermal cycling and normal bolt relaxation. The thread engagement problem was found to be limited to valves supplied by Velan, Inc. while loose bolts were common to all manufacturers (Velan, Anchor Darling, Jamesbury, Posi Seal and Gimpel).

CONTINUING SURVEILLANCE

Inspections will be performed on all safety related valves until the first refueling outage to verify that the bolts are not loosening as indicated by the condition of the torque seal on the bolts. Valves with SMB4 operators will be checked at each scheduled outage. Twenty-five percent of the balance of the valves will be checked every three months.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

|   |  |                |                   |                 |          |        |
|---|--|----------------|-------------------|-----------------|----------|--------|
| FACILITY NAME (1)<br><br>River Bend Station | DOCKET NUMBER (2)<br><br>0 5   0   0   0   4   5   8 | LER NUMBER (8) |                   |                 | PAGE (3) |        |
|   |  | YEAR           | SEQUENTIAL NUMBER | REVISION NUMBER | 0 4      | OF 0 4 |
|   |  | 8 6            | 0 3 0             | 0 0             |          |        |

TEXT (If more space is required, use additional NRC Form 388A's) (17)

At the first refueling outage, all safety related valves will be rechecked for breaking torques. Comparison of this data with the "as-left" information will be used to set future inspection intervals. Any valves found with less than the minimum torque required to assure joint integrity will be identified to allow modification to increase their ability to maintain the proper torque.

SAFETY CONSEQUENCES

No actual safety consequences resulted from the condition reported and the health and safety of the public was not endangered. 1FWS\*MOV7B failed in the closed position which is the position required for containment isolation. Had it failed in the open position, isolation would be maintained by outside containment isolation valve 1B21\*AOVF032B. The potential failure of the valves found deficient during the subsequent investigation could have affected such engineered safety features as containment isolation, drywell isolation, emergency core cooling and residual heat removal.



**GULF STATES UTILITIES COMPANY**

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

May 14, 1986  
RBG- 23670  
File Nos. G9.5, G9.25.1.3

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

Dear Sir:

River Bend Station - Unit 1  
Docket No. 50-458

Please find enclosed Licensee Event Report No. 86-030 for River Bend Station - Unit 1. This report is submitted pursuant to 10CFR50.73.

Sincerely,

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

*10/18 DRG*  
*JEH*  
JEB/TFP/DRG/BEH/je

cc: U.S. Nuclear Regulatory Commission  
611 Ryan Plaza Drive, Suite 1000  
Arlington, TX 76011

INPO Records Center  
1100 Circle 75 Parkway  
Atlanta, GA 30339-3064

*JE22*  
*11*