GULF STATES UTILITIES COMPANY

RIVER BEND STATION POST OFFICE BOX 220 ST. FRANCISVILLE, LOUISIANA 70775

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U.S. Nuclear Regulatory Commission
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Gentlemen:

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

This letter provides Gulf States Utilities Company's (GSU) response to Inspection Report 91-24. The inspection included a review of the program for implementing commitments to Generic Letter (GL) 89-10, "Safety-Related Motor-Operated Valve Testing and Surveillance." As a result of this inspection a number of items were identified which required additional information to complete NRC evaluation of GSU's program.

Attachment 1 to this letter provides GSU's response for each response item identified by the NRC. Additional attachments provide detailed information as discussed in Attachment 1.

If you have any questions or comments, please contact Mr. Leif L. Dietrich of my staff at (504) 381-4866.

Sincerely,

J Englund

for W.H. Odell
Manager - Oversight
River Bend Nuclear Group

MFS/PDG/LAE/REB/WJS/kvm

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cc:

U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 400
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NRC Resident Inspector
P.O. Box 1051
St. Francisville, LA 70775

Mr. D. V. Pickett
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
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ATTACHMENT 1

Response Item 1

The licensee used a stem friction coefficient of 0.15 and a valve factor of 0.30 in many valve calculations. These values have been shown to be nonconservative in many applications. The licensee is requested to submit a plan of action to validate or revise as necessary the 0.15 stem friction coefficient and 0.30 valve factor based on in-situ testing results. The submittal should include information gained from recent testing results.

GSU Response

GSU has developed Engineering Department Procedure EDP-ME-27 to provide a methodology to feed back information from diagnostic testing and maintenance to confirm the validity of the original design assumptions used and revise them as necessary. This procedure will be implemented by April 30, 1992. Two of the parameters evaluated in ME-27 are the stem friction coefficient and the valve factor. The procedure will become an ongoing process comparing current test data with calculation coefficients to verify previous assumptions. The procedure includes provisions for review of similar valves and an overall review periodically of the program assumptions.

Recent testing experience has shown that when using the newly acquired VOTES test system, GSU's design basis review methodology is very conservative. This testing has been limited to small globe type valves with SMB-000 actuators. Torque switch repeatability was more favorable and stem factors were much lower than the assumptions used in the design basis review. In addition, this testing has shown no rate of loading effects. Typically a 10% margin is added to account for torque switch repeatability, however, actual test data shows less than 2% is required. A friction coefficient of 0.15 is normally used to calculate the valve stem factor, but actual friction coefficients of 0.08 were measured. This lower than expected friction factor has been attributed to the manufacturing process of the valve stems. Extended flow testing was performed on one small bore globe valve with an SMB-000 actuator at 99% of MEDP. This test included two as found static tests, three baseline tests after preventative maintenance (PM) was performed, three full flow tests and three as left static tests. This testing revealed no rate of loading effects. Additionally, there was only an 8% difference between thrust readings before and after the PM was performed (stem was lubricated). This testing experience was limited to five small bore globe valves with SMB-000 actuators. Further testing should provide indication that small globe valves are very predictable with good torque switch repeatability, very low stem factors and little or no rate of loading effects.

Response Item 2

The inspector's review of several sizing and switch setting calculations revealed that some valves may be undersized and require additional corrective actions. The licensee is requested to review all of their currently completed calculations to determine those MOVs that are marginally sized. This subset of the valves should be assessed from an operability standpoint. The licensee's submittal should include the results of the review of the current calculations and plans to include this effort as a programmatic step for future calculations.

GSU Response

GSU has reviewed all GL 89-10 calculations issued through March 19, 1992 to identify potentially marginally sized actuators. This review concluded that all MOV actuators are adequately sized to perform their design function under calculated differential pressures using the standard assumptions currently utilized by industry groups. EDP-ME-26 has been revised to incorporate checks for design margin and for testing margin after application of test equipment and other applicable error factors. This review will be performed on all future calculations.

Response Item 3

The licensee's program description and memoranda stated that MOVs could be grouped for the purposes of reducing the number of required full flow tests. This position was not consistent with the licensee's commitment in response to GL 89-10 to flow test MOVs where practicable. The licensee indicated during the inspection that it intended to comply with their original commitment. The licensee is requested to submit revised program documentation confirming their original commitment.

GSU Response

GSU has revised Section 6.4.5 of the program description to restate our original position. Also added is a requirement to justify exceptions to this position and the requirement to notify the NRC of any changes to our current position. The affected page of the program description is provided in Attachment 2. The corresponding project memoranda have been revised to be consistent with the program description.

Response Item 4

The licensee's initial testing schedule indicated that very few MOVs would be tested at greater than static conditions. The licensee is requested to submit a list of all Cycle 4 and Refueling Outage 4 MOVs (114 total) showing for each: valve size, valve type (globe, gate, butterfly), whether it is anticipated that the valve will be tested under flow and differential pressure conditions, and, if so, the approximate percentage of maximum expected differential pressure and flow that will be attained during the test.

GSU Response

GSU has reviewed the initial list of MOVs to be tested in RF-4 to identify additional valves that could be flow tested. Attachment 3 provides the information requested by the NRC in Inspection Report 91-24. This attachment lists 114 MOVs scheduled for testing during RF-4. Of this number, 73 valves are scheduled for dynamic testing as well as a static baseline test and 41 valves are scheduled for static tests alone. Please note that this is a list of valves for which test preparations have been made. GSU will make all reasonable efforts to accomplish this testing goal.

Response Item 5

The licensee did not have a clearly-defined methodology to feedback information from diagnostic testing and maintenance/failure events to confirm the validity of the original design assumptions. The licensee is requested to submit a plan to establish this feedback process.

GSU Response

GSU has prepared a procedure to specifically address this item. EDP-ME-27 is planned to be implemented by April 30, 1992 to provide a method to feed back information from diagnostic testing and maintenance / failure events into design calculations to verify the validity of the original design assumptions.

Response Item 6

For Supplement 3 valves, the licensee was awaiting information from the valve vendor, Velan, to confirm that the valves could withstand the structural stresses expected when closing during a design event. The licensee is requested to submit the information supplied by the vendor.

GSU Response

GSU has received the subject information from Velan, the valve vendor, relating to the capability of the valve to withstand the structural stresses expected when closing during a design basis event. The letter transmitting this information from Velan, dated March 9, 1992, is included as Attachment 4. Velan has concluded that these valves are capable of withstanding the full output of the actuator on a one time basis. This means that the Supplement 3 valves will perform their design safety function for the event which they were intended.

Response Item 7

The licensee was in the process of establishing a new system for the design control of MOV switch setpoints. The licensee is requested to submit a description of their proposed method of controlling switch setpoints.

GSU Response

Control of torque switch settings is currently provided through a list of minimum / maximum values stated in maintenance procedure CMP-1253. Control of switch setpoints will ultimately be included in the MOV trending program (PEP-0059). That program, which is currently in preparation, will record the as left torque switch setting from each test and be able to trend that setting. In the interim period, a spreadsheet has been prepared which lists the last recorded torque switch setting. This data will be updated as testing progresses, until such time as it is incorporated into the trending program.

6.4.4 Performance of diagnostic testing at static system conditions shall be performed for each MOV.

NOTE

Testing under dynamic system conditions should simulate the design basis differential pressure determined in Step 6.1. In the event these system conditions are not achievable, dynamic testing at the maximum achievable conditions.

6.4.5 Performance of diagnostic testing under dynamic system conditions shall be performed for each MOV as determined in step 5.1.7. GSU committed in reference 3.5 to full flow tests where possible. In cases where insitu full flow and differential pressure testing cannot be accomplished, testing will be performed at the maximum flow and differential pressure conditions achievable using permanent plant equipment. GSU is aware, however, that for certain classes of valves of service applications (similar to those listed below), it may be possible to test a representative number of valves and apply the results to other similar valves. GSU is following industry activities in this area. As test data becomes available and justification is developed, GSU will notify the NRC should we intend to revise our commitment to dynamic testing. R1

- MOV's that operate under low design basis differential pressure/line pressure,
- MOV's with low design basis flows,
- MOV's calculated to have substantial design margin,
- Globe valves, based on their straight forward and reliable design methods, and
- MOV's only required to open with the torque switch bypassed during pullout;

ATTACHMENT 3

UPDATED: 3/18/92

VALVE NUMBER	VALVE TYPE	VALVE SIZE	FF/STATIC TEST	MEDP 80-100%	MEDP 50-79%	MEDP < 50%
1B21*MOVF016	GATE	3	STATIC			
1B21*MOVF019	GATE	.75	FLOW			X
1B21*MOVF065A	GATE	20	STATIC			
1B21*MOVF065B	GATE	20	STATIC			
1B21*MOVF067A	GLOBE	1.5	FLOW			X
1B21*MOVF067B	GLOBE	1.5	FLOW			X
1B21*MOVF067C	GLOBE	1.5	FLOW			X
1B21*MOVF067D	GLOBE	1.5	FLOW			X
1B21*MOVF085	GATE	3	FLOW			X
1B21*MOVF086	GATE	3	FLOW			X
1B21*MOVF098A	GATE	24	STATIC			
1B21*MOVF098B	GATE	24	STATIC			
1B21*MOVF098C	GATE	24	STATIC			
1B21*MOVF098D	GATE	24	STATIC			
1C11*MOVF083	GLOBE	2	FLOW	X		
1C41*MOVF001A	GLOBE	3	STATIC			
1C41*MOVF001B	GLOBE	3	STATIC			
1CCP*MOV13A	GATE	10	FLOW			X
1CCP*MOV158	GATE	10	FLOW			X
1CCP*MOV159	GATE	10	FLOW			X
1CCP*MOV163	GLOBE	2	FLOW			X
1CCP*MOV169	GLOBE	2	FLOW			X
1CNS*MOV125	GATE	4	FLOW	X		
1CNS*MOV130	GATE	4	FLOW	X		
1DFR*MOV146	GATE	4	FLOW			X
1E12*MOVF004A	GATE	20	STATIC			
1E12*MOVF008	GATE	18	STATIC			
1E12*MOVF009	GATE	18	STATIC			
1E12*MOVF011A	GLOBE	4	FLOW		X	
1E12*MOVF021	GLOBE	14	FLOW	X		
1E12*MOVF023	GLOBE	4	FLOW	X		
1E12*MOVF024A	GATE	14	FLOW	X		
1E12*MOVF027A	GATE	10	FLOW	X		
1E12*MOVF042A	GATE	10	FLOW		X	
1E12*MOVF042C	GATE	10	FLOW		X	
1E12*MOVF048A	GLOBE	14	FLOW	X		
1E12*MOVF053A	GLOBE	10	FLOW	X		
1E12*MOVF064A	GATE	4	FLOW		X	
1E12*MOVF105	GATE	20	STATIC			
1E21*MOVF001	GATE	20	STATIC			
1E21*MOVF005	GATE	10	FLOW		X	
1E21*MOVF011	GATE	4	FLOW		X	
1E22*MOVF001	GATE	16	STATIC			

UPDATED: 3/18/92

VALVE NUMBER	VALVE TYPE	VALVE SIZE	FF/STATIC TEST	MEDP 80-100%	MEDP 50-79%	MEDP < 50%
1E22*MOVF004	GATE	10	FLOW	X		
1E22*MOVF010	GLOBE	10	FLOW	X		
1E22*MOVF011	GLOBE	10	FLOW	X		
1E22*MOVF012	GATE	4	FLOW		X	
1E22*MOVF015	GATE	20	STATIC			
1E22*MOVF023	GLOBE	10	FLOW		X	
1E33*MOVF005	GLOBE	2	FLOW			X
1E33*MOVF006	GLOBE	2	STATIC			
1E33*MOVF007	GLOBE	2	FLOW			X
1E33*MOVF008	GLOBE	2	STATIC			
1E33*MOVF025	GLOBE	2	FLOW			X
1E33*MOVF026	GLOBE	2	STATIC			
1E33*MOVF027	GLOBE	2	FLOW			X
1E33*MOVF028	GLOBE	2	STATIC			
1E51*MOVF010	GATE	6	STATIC			
1E51*MOVF013	GATE	6	STATIC			
1E51*MOVF019	GLOBE	2	FLOW		X	
1E51*MOVF022	GLOBE	4	FLOW	X		
1E51*MOVF031	GATE	6	STATIC			
1E51*MOVF045	GLOBE	4	FLOW			X
1E51*MOVF046	GLOBE	2	FLOW	X		
1E51*MOVF059	GATE	4	FLOW	X		
1E51*MOVF063	GATE	8	STATIC			
1E51*MOVF064	GATE	8	STATIC			
1E51*MOVF068	GATE	12	STATIC			
1E51*MOVF077	GLOBE	1.5	STATIC			
1E51*MOVF078	GLOBE	2.5	STATIC			
1FPW*MOV121	GATE	6	FLOW			X
1FPW*MOV122	GATE	6	FLOW			X
1FWS*MOV7A	GATE	20	STATIC			
1FWS*MOV7B	GATE	20	STATIC			
1G33*MOVF001	GATE	6	STATIC			
1G33*MOVF004	GATE	6	STATIC			
1G33*MOVF028	GATE	4	FLOW	X		
1G33*MOVF034	GATE	4	FLOW	X		
1G33*MOVF039	GATE	6	FLOW	X		
1G33*MOVF040	GATE	6	FLOW	X		
1G33*MOVF053	GATE	4	STATIC			
1G33*MOVF054	GATE	4	STATIC			
1HVN*MOV102	GATE	8	FLOW			X
1HVN*MOV127	GATE	8	FLOW			X
1HVN*MOV128	GATE	8	FLOW			X
1HVN*MOV129	GATE	8	FLOW			X
1HVN*MOV130	GATE	8	FLOW			X
1HVN*MOV22A	GATE	6	FLOW			X

UPDATED: 3/18/92

VALVE NUMBER	VALVE TYPE	VALVE SIZE	FF/STATIC TEST	MEDP 80-100%	MEDP 50-79%	MEDP < 50%
1HVN*MOV22B	GATE	6	FLOW			X
1IAS*MOV106	GATE	3	STATIC			
1IAS*MOV107	GATE	3	STATIC			
1LSV*MOV16A	GLOBE	1	FLOW			X
1RCS*MOV58A	GLOBE	1	FLOW	X		
1RCS*MOV58B	GLOBE	1	FLOW	X		
1RCS*MOV59A	GLOBE	1	FLOW	X		
1RCS*MOV59B	GLOBE	1	FLOW	X		
1RCS*MOV60A	GLOBE	.5	FLOW	X		
1RCS*MOV60B	GLOBE	.5	FLOW	X		
1RCS*MOV61A	GLOBE	.75	FLOW		X	
1RCS*MOV61B	GLOBE	.75	FLOW		X	
1SAS*MOV102	GATE	4	FLOW			X
1SAS*MOV103	GATE	4	FLOW			X
1SFC*MOV119	GATE	12	STATIC			
1SFC*MOV120	GATE	12	STATIC			
1SFC*MOV121	GATE	8	STATIC			
1SFC*MOV122	GATE	12	STATIC			
1SFC*MOV139	GATE	8	STATIC			
1SVV*MOV1A	GATE	1.5	FLOW			X
1SWP*MOV73B	GATE	4	FLOW	X		
1SWP*MOV74B	GATE	4	FLOW	X		
1WCS*MOV111	GATE	4	FLOW	X		
1WCS*MOV172	GATE	2.5	FLOW		X	
1WCS*MOV173	GATE	2.5	FLOW	X		
1WCS*MOV178	GATE	2.5	FLOW		X	

ATTACHMENT 4

Velan Valve Corporation
Ave "C"
Griswold Industrial Park
Williston, Vermont 05495
Tel: (802) 863-2562
Telex: 00-954613
Fax: 802 862-4014

VELAN

March 9th, 1992

GULF STATES UTILITIES CO.
River Bend Station
Highway 61, 2 Miles So. of
St. Francisville, LA 70775

Attention: Mr. H. Grimes

Subject: Customer P.O.: 90-L-74599, Rev. 1
Velan No.: P9-75472-K01

Dear Mr. Grimes,

We hereby ascertain that, as per our weak link aralysis DC-041, the valves could withstand, in closing, the stall thrust (at 110%V). This is based on the calculated one-time allowable thrusts.

	Valve Dwg. No.	One-time allowable in closing (approx.)	Stall Thrust:
G33* mov F001, F004	P3-5501-N24 (6" 600#)	65,000 lb. (yoke)	49000 lb./62,500 lb.
E51* mov F003, F064	P3-5501-N25 (8" 600#)	110,000 lb. (stem)	107,000 lb.

Should you require further information, do not hesitate to contact us.

Yours truly,
VELAN VALVE CORPORATION

Madeleine Murphy

MM/sm