

Mailing Address

Alabama Power Company
600 North 18th Street
Post Office Box 2641
Birmingham, Alabama 35291
Telephone 205 783-6081

F. L. Clayton, Jr.

Senior Vice President
Flintridge Building

Docket Nos. 50-348
50-364



Alabama Power

the southern electric system

September 13, 1983

Director, Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Units 1 and 2
Supplementary Information on the Inservice
Testing of Containment Sump Isolation Valves

Dear Mr. Varga:

In discussions held with Messrs. Ed Reeves and Frank Chierney of your staff on September 8, 1983, Alabama Power Company was asked to verify that redundant, remote valve position indication was provided for the four encapsulated containment sump isolation (RHR and Containment Spray Pump Suction) valves in each unit. In response to this request, Alabama Power Company has verified that redundant, remote valve position indication for these valves is provided at the following three locations on the main control board as described below:

1. Main control board valve switch - Red and green position indication lights are located on the main control board adjacent to the valve switch. An illuminated red light indicates a fully open valve and an illuminated green light indicates a fully closed valve. If both lights are illuminated, the valve is partially open and is moving from the open-to-closed or closed-to-open position.
2. Monitor light box No. 2 - An illuminated white indicating light on the monitor light box No. 2, which is located on the main control board, indicates that the valve is fully open.
3. Monitor light alarm - An illuminated white indicating light alarm, which is located on the annunciator panel of the main control board, indicates that the valve is fully open.

A047
1/1

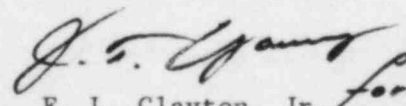
Docket Nos. 50-348 & 50-364
Joseph M. Farley Nuclear Plant - Units 1 and 2
Supplementary Information on the Inservice
Testing of Containment Sump Isolation Valves
September 13, 1983
Page 2

These indications are received from one four-rotor type, four-train, geared limit switch which is an integral component of the Limitorque motor operator utilized on each of these valves. A technical description of this switch, including setting procedures, is provided in Attachment 1. The limit switch has four rotors, which each have four sets of contacts. A listing of the rotors and contacts which are connected to each of the lights is presented in Attachment 2.

Diverse power supplies are utilized to energize the indicating lights from the limit switch. The main control board indicating lights (red and green) are energized through the main 600 volt motor control center supplying the motor operator. The monitor light box and monitor light alarm lights (white) are energized from an inverter.

The technical description provided herein is typical of all four encapsulated containment sump isolation valves in each unit, and describes how valve position indication is taken from physical actuator movement. One valve (Q2E11V025A) in Unit 2 presently takes indication from a rotor which has been determined to be out of calibration. During the second refueling outage of Unit 2, scheduled to begin September 17, 1983, a modification will be made to this valve operator so that its position indication will be derived from a calibrated rotor. With completion of this modification, this valve will function as described above.

Yours truly,

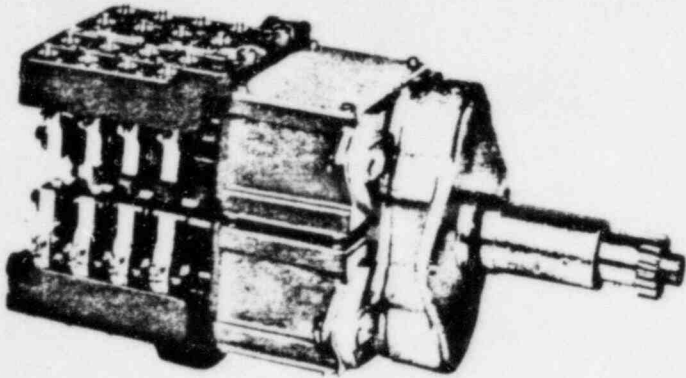

F. L. Clayton, Jr.

STB:kc/D-302

Attachments

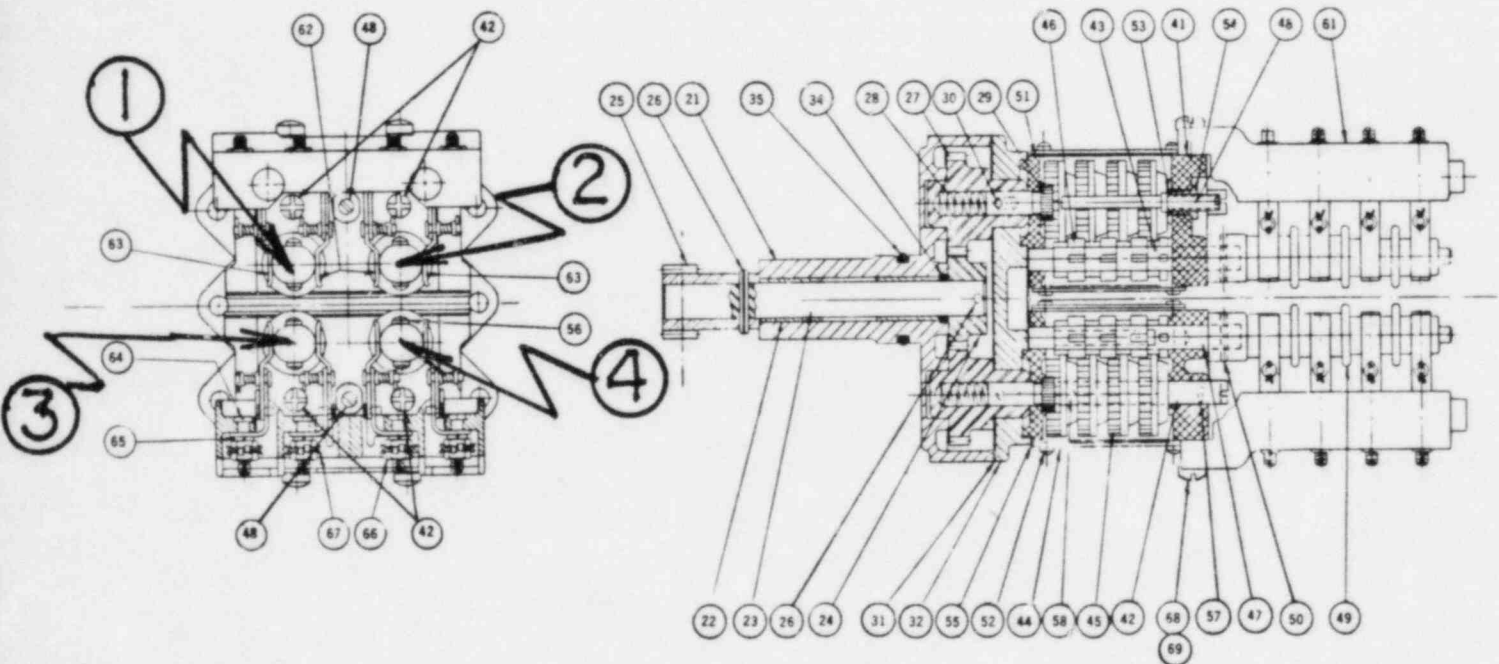
cc: Mr. R. A. Thomas
Mr. G. F. Trowbridge
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

PROCEDURE FOR SETTING FOUR TRAIN GEARED LIMIT SWITCH-ROTOR TYPE



The four train geared limit switch (Rotor type) employs four rotary drum switches, each having four contacts. When the rotor is properly set to trip at the desired position, two of these contacts open and two close electric circuits. Generally, one rotor is set to trip at full open position of the valve and one rotor is set to trip at full close position of the valve. The other two rotors are set at some intermediate position, depending on the requirements of the project.

To set the switches of a four train rotor type switch, follow the same procedure as described for the two train rotor type switch. The upper setting rod, pc. #48, allows adjustment of the two adjacent upper rotors, and lower setting rod, pc. #48, allows adjustment of the two adjacent lower rotors.



01-472-0007-3

PC. NO.	NO. REQD.	DESCRIPTION	PC. NO.	NO. REQD.	DESCRIPTION	PC. NO.	NO. REQD.	DESCRIPTION
21	1	CARTRIDGE	36	4	# $\frac{1}{8}$ -18 x $\frac{5}{8}$ " FILL. HD. CAP SCREW & L.W.	55	2	GASKET, GEAR FRAME
22	2	OILITE BUSHING	41	2	GEAR FRAME	56	16	INSERT (ROTOR)
23	1	DRIVE SHAFT	42	4	INTER. GEAR SHAFT	57	2	"O"-RING, #1820-5
24	1	DRIVE PINION (INTERNAL)	43	4	INTER. PINION SHAFT	58	2	GROOVE PIN $\frac{1}{8}$ ϕ x 1" LG.
25	1	HELICAL PINION	44	4	G.L. FRAME COVER	61	2	FINGER BASE
26	2	GROOVE PIN $\frac{1}{8}$ ϕ x 1" LG.	45	16	INTERMITTENT GEAR	62	16	R.H. FINGER ASS'Y
27	2	DRIVE SLEEVE & GEAR	46	12	INTERMITTENT PINION	63	16	L.H. FINGER ASS'Y
28	2	DECLUTCH SPRING	47	4	STEM SPUR PINION	64	32	#10-32 x 1" LG. HEX. HD. C. S.
29	2	DRIVE PINION SPUR	48	2	SET ROD	65	32	#10 LOCKWASHER
30	2	PIN $\frac{1}{8}$ ϕ x $\frac{1}{4}$ " LG.	49	4	ROTOR	66	64	#10-32 HEX NUT
31	1	CARTRIDGE GASKET	50	4	GROOVE PIN $\frac{1}{8}$ ϕ x $\frac{3}{4}$ " LG.	67	64	#10 SW'B'D WASHER
32	1	CARTRIDGE MTG. PLATE	51	4	COVER GASKET	68	4	# $\frac{1}{4}$ -20 x $\frac{3}{8}$ FILL. HD. C. S.
33	4	# $\frac{1}{4}$ -20 x $\frac{3}{8}$ LG. SOC. HD. C. S.	52	16	#6-32 x $\frac{1}{4}$ LG. FILL. HD. M. S.	69	4	$\frac{1}{4}$ " INT. TOOTH LOCKWASHER
34	1	"O"-RING, #6227-11	53	2	"O"-RING #1820-3			
35	1	"O"-RING, #6227-21	54	2	SETTING ROD BUSHING			

PROCEDURE FOR SETTING TWO TRAIN GEARED LIMIT SWITCH—ROTOR TYPE

The two train geared limit switch (rotor type) employs two rotary drum switches, each having four contacts. When the rotor is properly set to trip at the desired position, two of these contacts open electric circuits and two contacts close electric circuits. Generally, one rotor is set to trip at the full open position of the valve, and the other rotor is set to trip at the full close position of the valve. Each drum switch may be adjusted independently of the other.

One circuit on the one drum is used to open the "open" holding coil circuit of the motor controller, and another circuit of the drum is used to operate the "open" indicating light for the valve.

On the other drum, one circuit is used to control the "closed" indicating light, and another circuit may be used to open the "close" holding coil circuit of the motor controller. Please refer to the wiring diagram assigned for the actual application and circuitry to be used. The wiring diagram may be furnished as part of the Limitorque valve control, or may be furnished by the contractor who supplies the motor control and pushbutton station equipment.

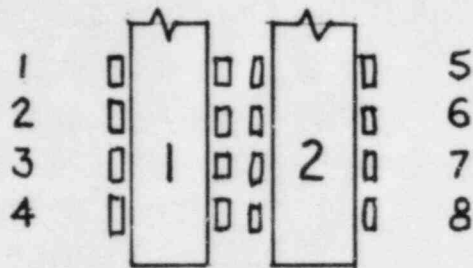
In order to set the geared limit switches to trip at any desired position, the following procedure should be observed:

1. Be certain all electric power is turned off.
2. Use the handwheel to manually open the valve, and note direction of rotation of pc. #42, Inter-

mittent Gear Shaft, over the rotor to be set. When the valve is full open, close the valve slightly to allow for coast of moving parts.

3. Turn pc. #48 clockwise with a screwdriver, until it reaches a stop position.
4. If the rotor to be set has not turned 90° to open the contacts which are to trip open at this position, insert screwdriver on pc. #42 and turn in the same direction as noted previously until pc. #49 turns and opens the contacts to be set. If the rotor, pc. #49, has turned so that the contacts are already open, turn pc. #42 in the opposite direction as previously noted until the contacts close. Then, turn pc. #42 slightly in the same direction as originally noted until the contacts open.
5. The rotor is now set at the correct position so that the contacts open. Back off on pc. #48 until it stops. Again place screwdriver on pc. #42 to insure that it is tight and will not rotate. (Do not force.)
6. The same procedure should be followed for the other rotor adjustment by closing the valve completely to set the tripping position of the other rotor.

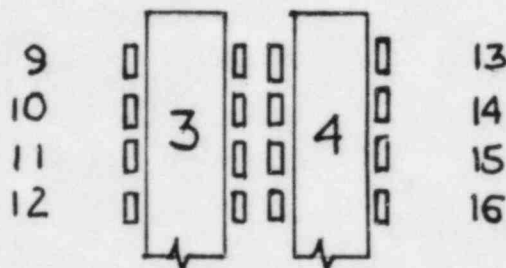
ATTACHMENT 2



TOP VIEW OF ROTORS 1 & 2
SHOWING CONTACT SETS
1 THRU 8



END VIEW OF ROTORS
1 THRU 4



BOTTOM VIEW OF ROTORS 3 & 4
SHOWING CONTACT SETS
9 THRU 16

LIMIT SWITCH CONTACT SCHEME

ROTOR NO	CONTACT SET NO	INDICATING LIGHT	LIGHT LOCATION (ALL ARE ON MAIN CONTROL BOARD)
1	1	WHITE GREEN	MONITOR LIGHT BOX NO. 2 SWITCH-MAIN CONTROL BOARD
1	2		
1	3		
1	4		
2	5	RED	SWITCH-MAIN CONTROL BOARD
2	6		
2	7		
2	8		
3	9	WHITE	MONITOR LIGHT ALARM (ANN)
3	10		
3	11		
3	12		
4	13		
4	14		
4	15		
4	16		