Omaha Public Power District

1623 HARNEY OMAHA, NEBRASKA 68102 TELEPHONE 536-4000 AREA CODE 402

May 15, 1981

Mr. Robert A. Clark, Chief
U. S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation
Division of Licensing
Operating Reactors Branch No. 3
Washington, D.C. 20555

Reference: Docket No. 50-285

Dear Mr. Clark:

The attached information is provided in response to discussions between Messrs. C. Trammell and P. Bender of your staff, Mr. D. Hackett of EG&G, and Messrs. T. Patterson, R. Mehaffey, and D. Flegle of Omaha Public Power District on April 23, 1981 and April 27, 1981. In response to IE Bulletin 80-06 regarding resetting of ESF components, the District determined a need to modify certain circuits to preclude repositioning or resequencing of several components that are actuated by emergency safeguards signals. Valve circuits for valves PCV-521, HCV-480, 481, 484, and 485 will be modified to remain in their accident position upon reset of the safeguards actuation signals. AC sequencer circuit SI-2 will be modified to prevent load shedding of safeguards buses upon reset of the offsite power loss signal lockout relays. As an interim measure, the Emergency Procedure (EP-35) has been revised to ensure operator awareness of the effects of resetting the ESF actuation signals.

The attached information provides before and after sketches of the circuit changes planned for valves PCV-521, HCV-480, HCV-481, HCV-484, HCV-485, and AC sequencer circuit SI-2. A verbal description of the changes to the sequencer circuit and the revisions to EP-35 are also provided.

Sincerely,

W. C. Jones
Division Manager
Production Operations

WCJ/KJM/TLP:jmm

Attach.

cc: Mr. Doug Hackett, EG&G
LeBoeuf, Lamb, Leiby & MacRae

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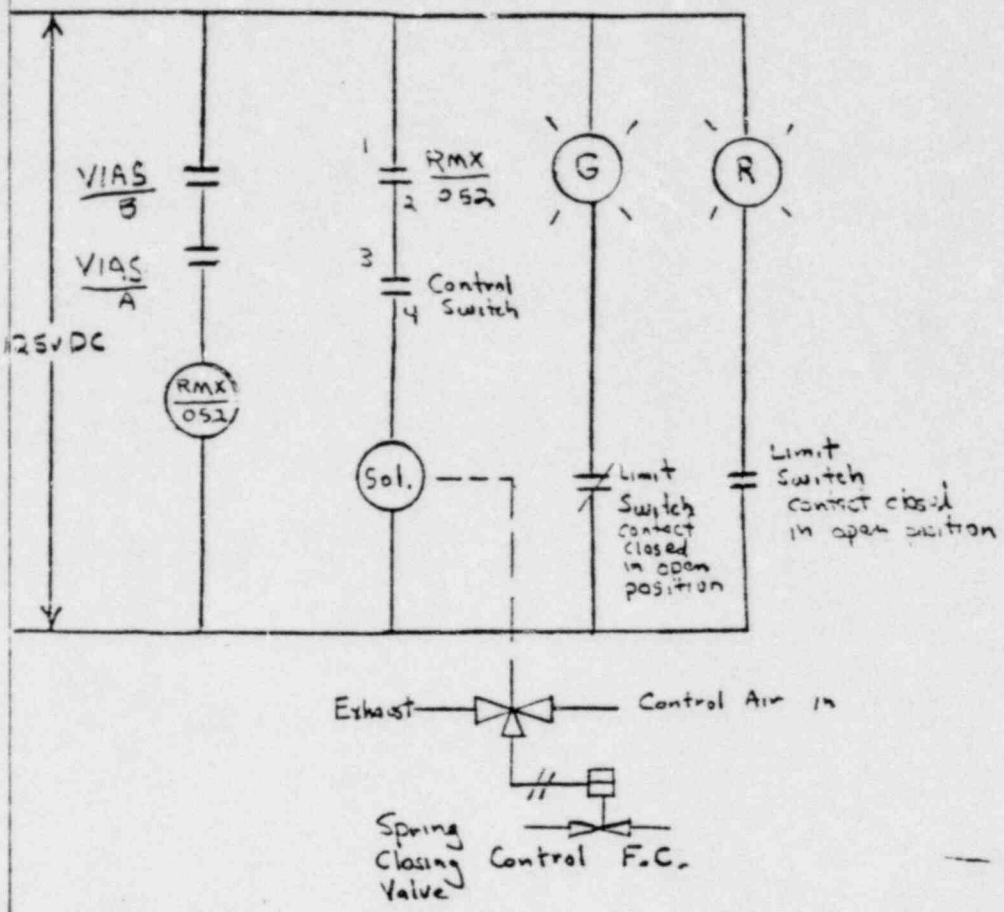
Figure 1

PCV-521 Before Modification

PCV-521 (GHDR 1405 E-33)



Notes

1) VIAS - Ventilation Isolation Actuation Signal

2) VIAS contacts are closed under normal conditions

3) Contacts 3 and 4 are closed in the Control Switch "Open" position. Contact 3 and 4 is a maintained contact.

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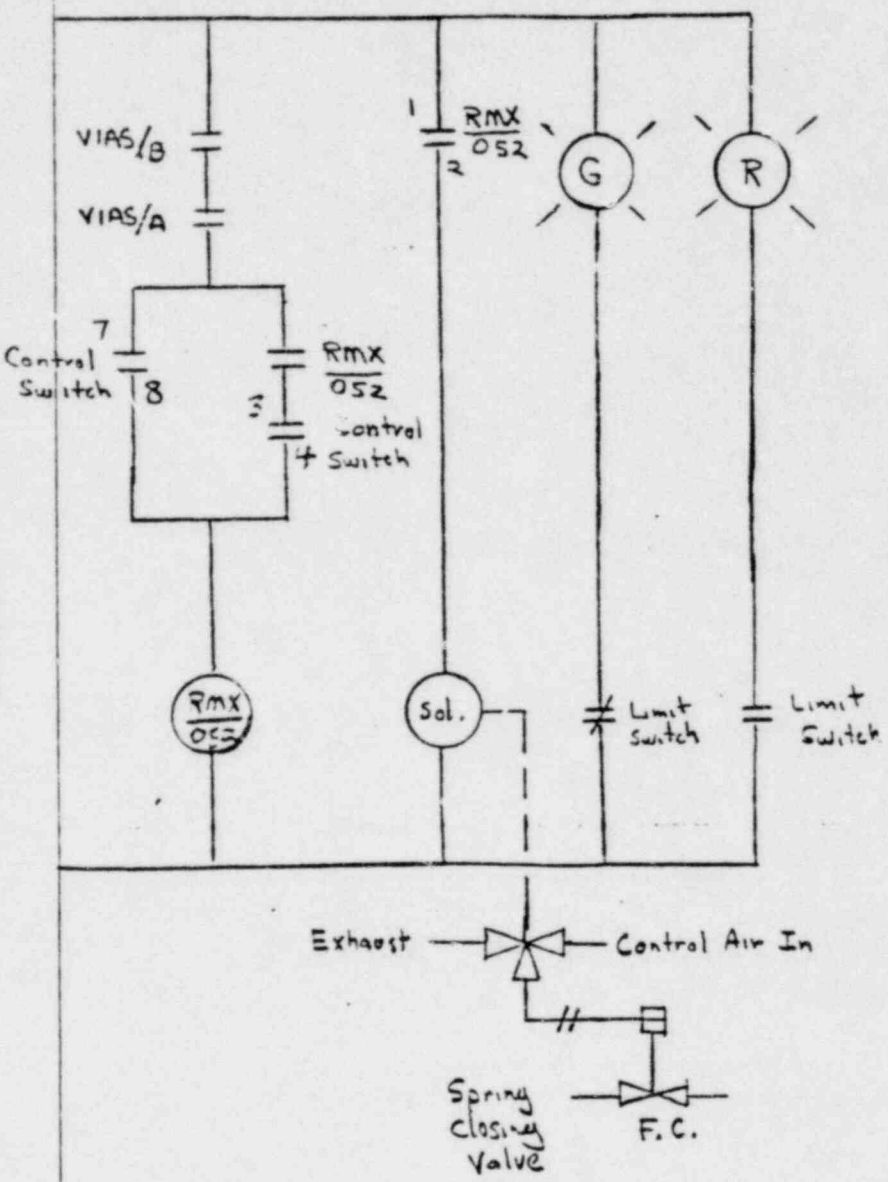
PCV-521 After Modification

Figure 2



Notes:

1. Control Switch has been changed to a spring return to center position switch. Contacts 7 and 8 are closed in the closed position and open in the center position. Contacts 3 and 4 are closed in the closed position and the center position.
2. VIAS - Ventilation Isolation Actuation Signal
3. VIAS contacts are closed under normal conditions
4. Limit switch portions the same as in figure 1

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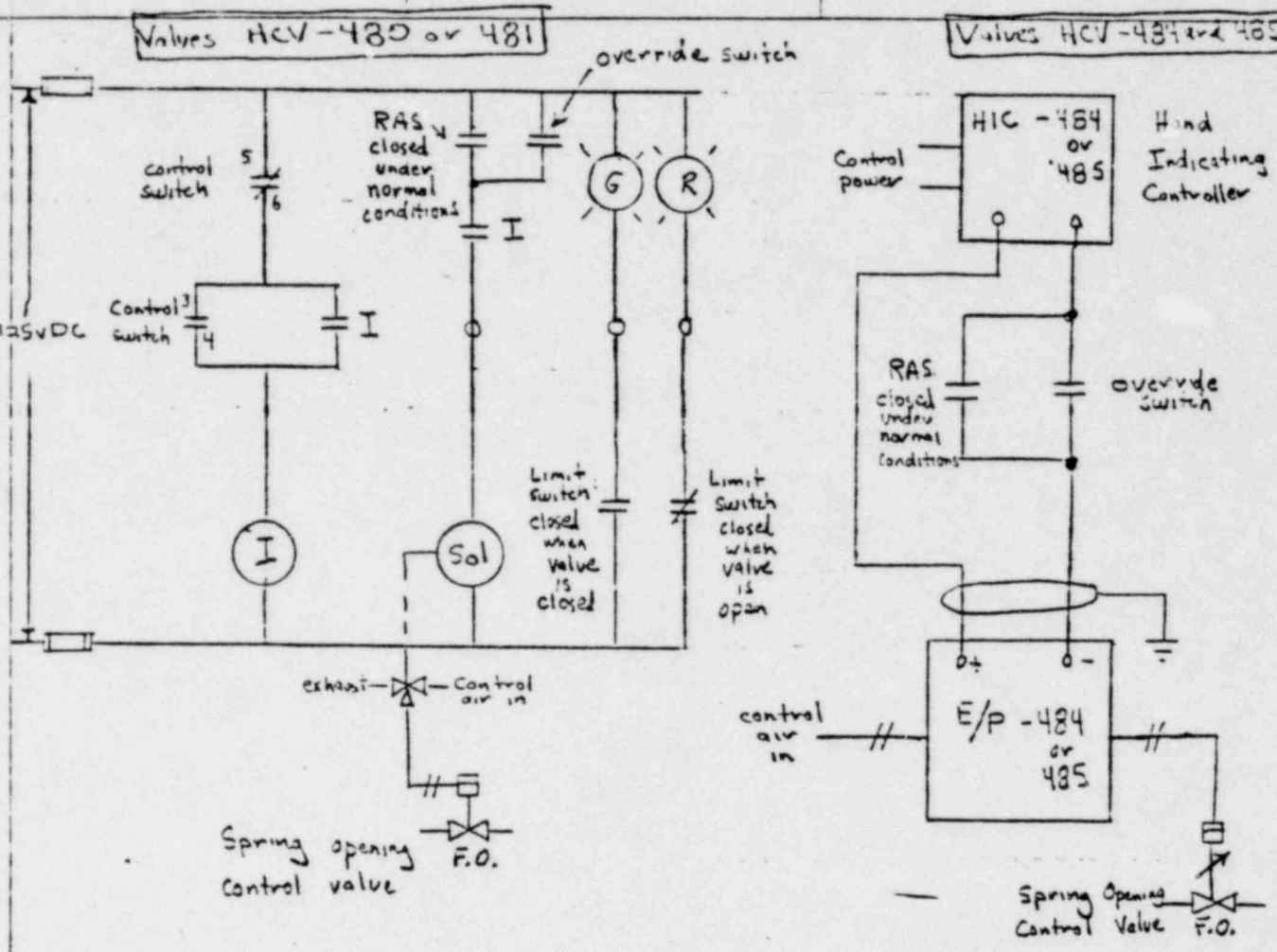
Figure 3 HCV's 480, 481, 484 and 485 Before Modification



Notes: 1) Contacts 5 and 6 of control switch are closed in the closed position and spring return to normal position

2) Contacts 3 and 4 of control switch are momentary and are closed in closed position only

3) The control switch consists of 3 positions - closed, normal and open

4) RAS - Recirculation Activation Signal

5) Override switch operates valve pairs i.e. HCV 480 and 484; HCV 481 and 485

6) Valves 484 and 485 go full open upon receipt of RAS. Upon reset of RAS the valves go to the position desired as set by the hand indicating controller.

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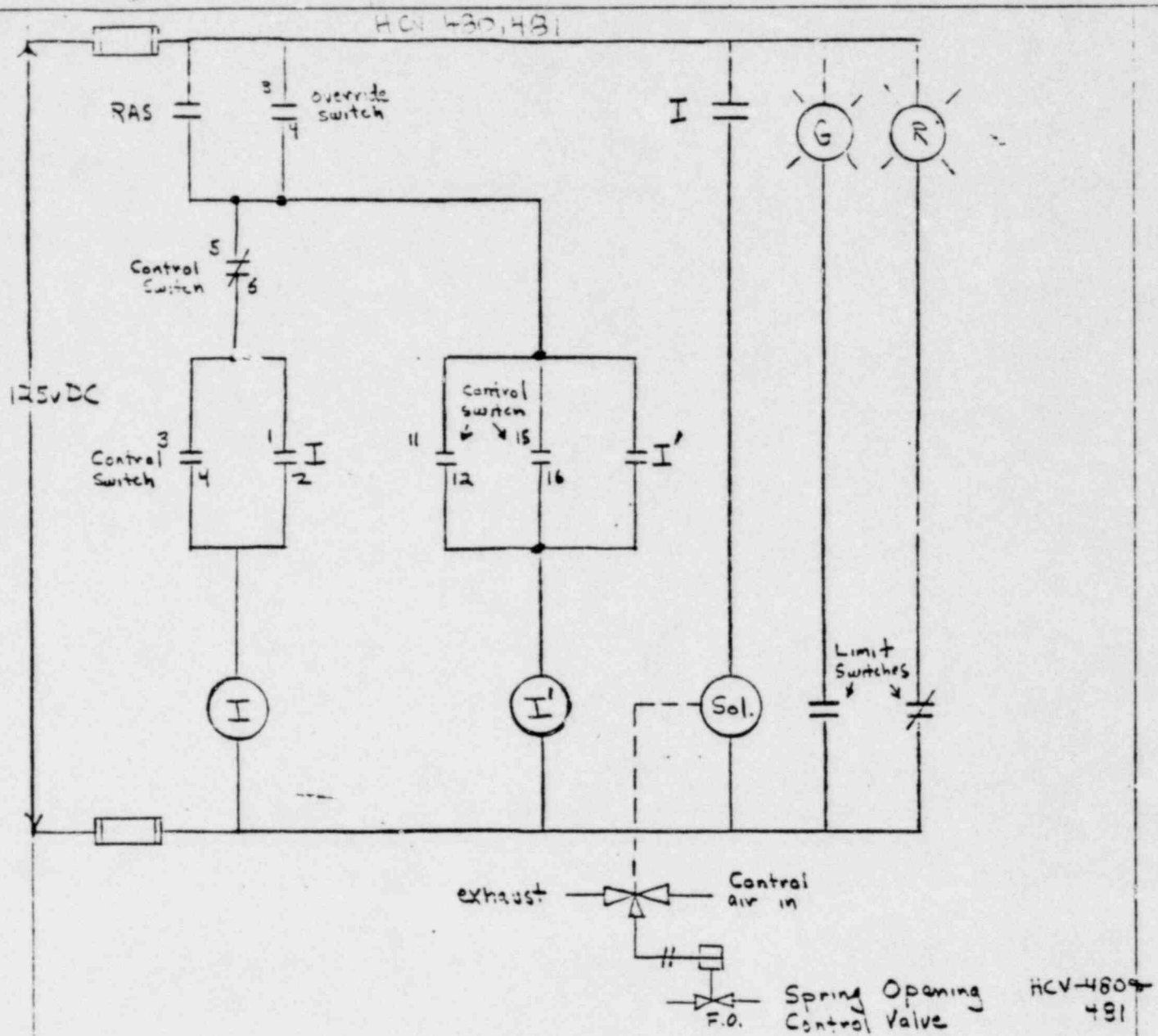
Figure 4 | HCV's 480, 481, 484 and 485 After Modification



Notes:
1) RAS - Recirculation Actuation Signal
2) Contacts 5 and 6 of control switch are closed in the closed position and spring return to normal position
3) contacts 3 and 4 and 11 and 12 are momentary and are closed in the closed position only
4) contacts 15 and 16 are momentary and are closed in the open position only
5) RAS contact closed under normal conditions
6) Override switch operates valve pairs i.e. HCV-480 and 484; 481 and 485
7) An additional relay I' will be needed for valves HCV-484 and 485
8) The hand indicating controller controls the position of the valves HCV-484 and 485 when the 10-50 milliamp circuit (figure 2) is completed. When the contact I' is open the valve(s) go full open.

Figure 4 a

HCV's 480, 481, 484 and 485 After Modification

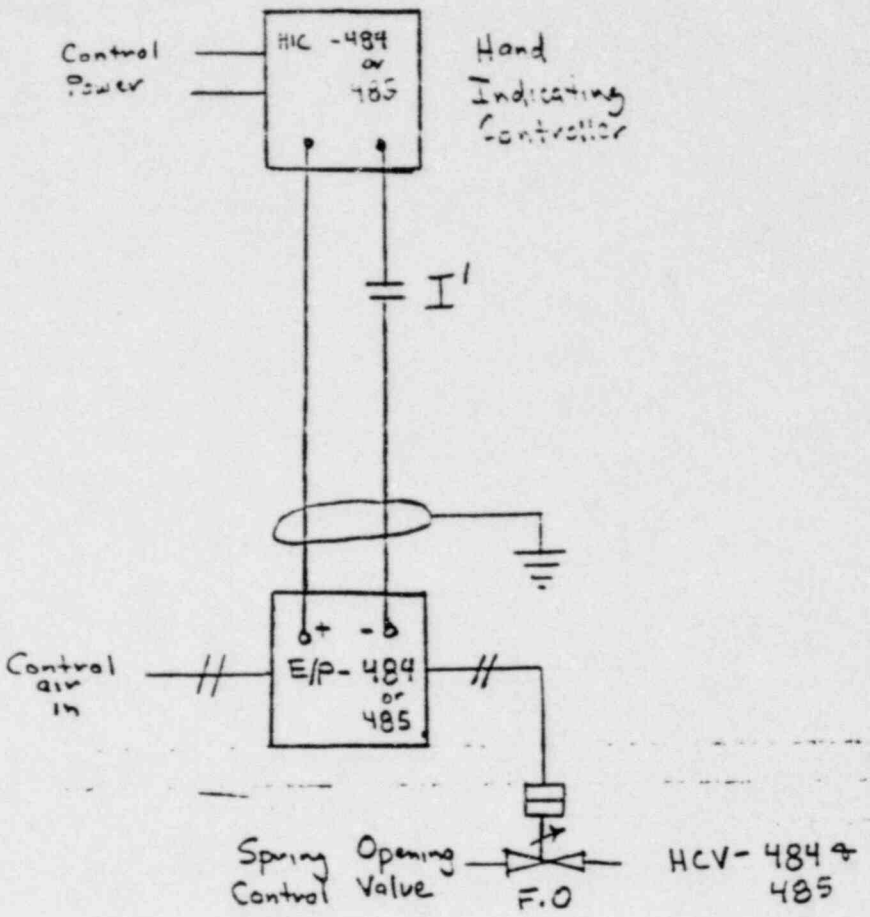
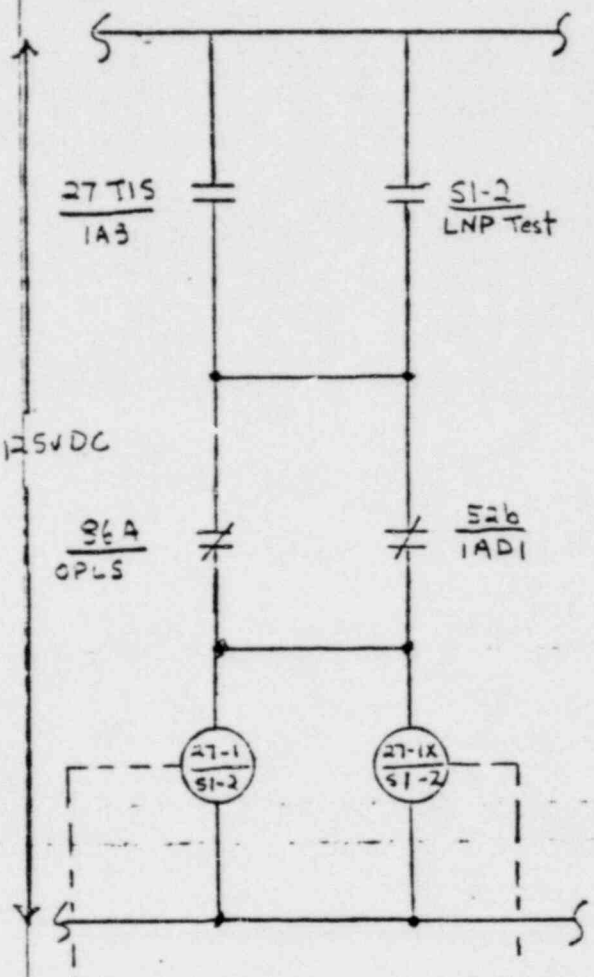


Figure 5

AC Sequencer Circuit S1-2 Before Modification

AC Sequencer S1-2



Notes

1) $\frac{27\ TIS}{1A3}$ - Offsite Power Loss Signal and Low Voltage on bus 1A3 actuated
2) $\frac{S1-2}{LNP\ Test}$ Loss of Normal Power Test Switch
3) $\frac{52b}{1AD1}$ "b" contact from 1AD1 Diesel Gen. output circuit breaker
4) $\frac{86A}{OPLS}$ Contact changes state upon receipt of loss of offsite power and safety injection
5) The sketch is similar for all sequencer circuits. There are 2 D.C and 2 AC sequencing circuits
6) Refer to General Description of Sequencing Circuit Attachment for the operation of this control circuit.

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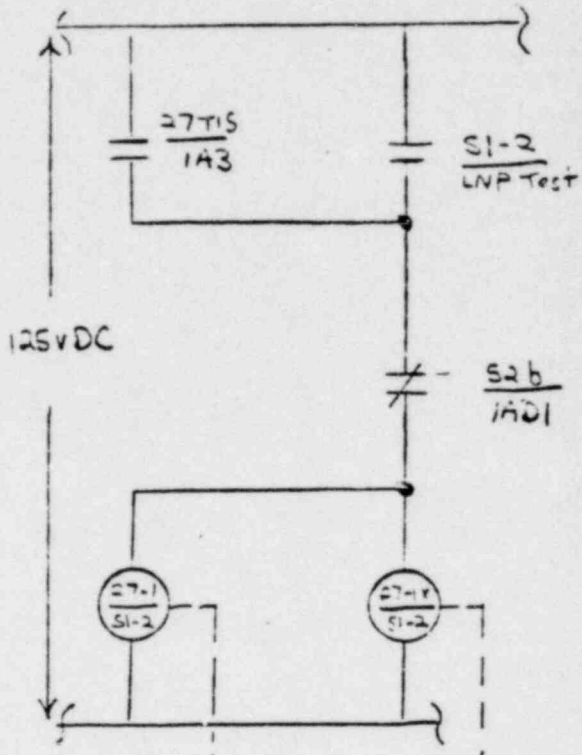
Figure 6 | AC Sequencer Circuit S1-2 After Modification

AC Sequencer S1-2



Notes in Figure 5 apply to Figure 6

4.16KV Bus 1A3 ckt 3 AC — 1/2

480V Bus 1B3A ±1B3A-4A ckt 4 — 3/4, 5/6

Sequencer Auto Standby Annunciator — 7/8, 9/10

Sequencer Cutoff Annunciator — 11/12

1/2 — 480V Bus 1B3B ±1B3B-4B ckt 5

3/4

5/6 — 480V Bus 1B3C ± 1B3C-4C ckt 6

7/8

9/10 — Sequencer Auto Standby Annunciator

11/12 — Sequencer Cutoff Annunciator

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General Description of Sequencing Circuit

Upon receipt of an Offsite Power Loss Signal (OPLS) the following will happen (refer to Figure 5):

1. Relay 27 TIS/1A3 is energized closing the contact in Figure 5.

2. Contact 86A/OPLS opens.

3. Diesel Generator circuit breaker auxiliary contact 52b/1AD1 remains closed. This contact stays closed until the circuit breaker ~~opens~~ closes.

4. Relays 27-1/SI-2 and 27-1X/SI-2 are energized. The contact outputs from these relays will reset the sequencer timing relays. This action will load shed the 4160 V safeguard buses thus preparing the buses for the diesel generator.

5. The diesels accelerate up to running speed with the proper voltage established at its terminals. The diesel generator circuit breaker closes and contact 52b/1AD1 opens, thereby de-energizing 27-1/SI-2 and 27-1X/SI-2. The sequencing timers are beginning to time out and safeguard loads begin to be loaded.

A few items need to be understood at this time:

1. OPLS is actuated by two independent channels.

2. Either of these OPLS channels (86A/OPLS and 86B/OPLS) or both can energize relay 27 TIS/1A3.

Upon reset of the OPLS lockouts, the following can happen:

1. Assume that the 86A/OPLS lockout is reset before the 86B/OPLS lockout is.

2. Contact 86A/OPLS in Figure 5 will close.

3. Contact 27 TIS/1A3 remains closed as 86B/OPLS keeps the relay 27 TIS/1A3 energized.

4. Relays 27-1/S1-2 and 27-1X/S1-2 are energized. The contact outputs from these relays will reset the sequencer timing relays. This will again loadshed the safeguard buses which is the undesirable feature of this scheme.

Presently, this problem is being addressed administratively in EP-35 for the interim process. Test switches in series with the 86A/OPLS and 86B/OPLS contacts that energize 27 TIS/1A3 relay will be opened prior to the OPLS lockout reset. This will ensure that the 27 TIS/1A3 contact will be opened, thereby eliminating any possibility of picking up relays 27-1/SI-2 and 27-1X/SI-2. As a permanent solution, the District is looking into removing contact 86A/OPLS from the sequencer scheme. The original

intent of contact 86A/OPLS being in this control circuit would be to arm the sequencer circuit while the diesel generator is being tested in its monthly surveillance test. The Architectural Engineering firm of Stone and Webster is employed by the District in preparing a safety analysis for the removal of the OPLS contact. It should be noted that a favorable safety analysis is required before final approval to remove the contact will be made.

EP-35 Summary

In order to assure operator awareness of the fact that certain of the Fort Calhoun Station Engineering Safety Features (ESF) equipment will change state on reset of the ESF initiating lockout relays (designated 86) Emergency Procedure EP-35 has been modified.

EP-35 is the station's step-by-step procedure which provides for the orderly and safe resetting of the initiating signals. Under the EP a step-by-step procedure is provided for resetting the 86 lock out relays. Accompanying these step-by-step procedures are tables which identify all equipment special features, and functions.

The District has included reset information wherever most applicable. OPLS information is in the step-by-step section. Valve information is provided in the table. Since reset occurs after the accident transient has been stabilized, the District feels that no safety problem will be encountered during the interim until modification is completed in the fall 1981 refueling outage.

After the modifications are completed, the District plans to revise EP-35 to reflect the as built status of circuits.