C 09/01/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL 50-312

REC: REID R W
NRC

ORG: MATTIMOE J J
SACRAMENTO MUN UTIL DIST

DOCDATE: 08/28/78
DATE RCVD: 09/01/78

DOCTYPE: LETTER NOTARIZED: NO
SUBJECT:

COPIES RECEIVED
LTR 1 ENCL 40

RESPONSE TO NRC LTR DTD 02/28/78..FURNISHING ADDL INFO CONCERNING CERTAIN PROPOSED MODIFICATIONS IN THE FORM OF DESIGN DETAILS RE NRC"S FIRE PROTECTION SAFETY EVALUATION FOR SUBJECT FACILITY, AND REQUESTING MEETING FOR 09/14/78 FOR REVIEW AND APPROVAL 0

PLANT NAME: RANCHO SECO (SMUD)

REVIEWER INITIAL: XJM
DISTRIBUTOR INITIAL FBM

********** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS **********

FIRE PROTECTION INFORMATION (AFTER ISSUANCE OF OL).
(DISTRIBUTION CODE A006)

FOR ACTION: BR CHIEF ORB#4 BC**W/4 ENCL

INTERNAL:
REG FILE**W/ENCL
I & E**W/2 ENCL
AUXILIARY SYS BR**W/2 ENCL
PLANT SYSTEMS BR**W/5 ENCL
R. MURANKA**W/ENCL
NRC PDR**W/ENCL
OELD**LTR ONLY
AD FOR SYS & PROJ**W/ENCL
WAMBACH**W/ENCL
HANAUER**W/ENCL

EXTERNAL:
LPDR'S
SACRAMENTO, CA**W/ENCL
REGION V**W/ENCL
TERA**W/ENCL
NSIC**W/ENCL
ACRS CAT B**W/16 ENCL

DISTRIBUTION: LTR 40 ENCL 39
SIZE: 5P+4P

CONTROL NBR: ~~7824400~~
MA 4 GD

********** THE END **********

8004020 660 P

SMUD
SACRAMENTO MUNICIPAL UTILITY DISTRICT □ 6201 S Street, Box 15830, Sacramento, California 95813; (916) 452-3211

August 28, 1978

Director of Nuclear Reactor Regulation
Attention: Mr. Robert W. Reid, Chief
Operating Reactors, Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Docket No. 50-312
Rancho Seco Nuclear Generating
Station, Unit No. 1

Dear Mr. Reid:

The NRC's Fire Protection Safety Evaluation for the Rancho Seco Nuclear Power Plant which was attached to your letter dated February 28, 1978, required additional information on certain proposed modifications in the form of design details to assure that the design is acceptable to the NRC prior to the actual implementation of the modifications. Listed below by Section 3.0 paragraph number of the Fire Protection Safety Evaluation are design details on four items that were identified by the NRC as requiring approval and one item where the District is proposing a modification different than one stated in the Fire Protection Safety Evaluation. As indicated in discussions with your staff the District requests a meeting on September 14, 1978 with the NRC to have these items reviewed and approved. This meeting is necessary to allow the items to be completed by the dates listed in the NRC's Fire Protection Safety Evaluation Section 3.0.

Proposed Modification

Install thermal insulation on functionally redundant channel A, C, and D conduits in the control-computer room, Fire Area One.

Design Detail

Drawing E745, Sheet 2 in the District's Fire Hazard Analysis identifies all channel A, B, C, and D conduits and the channel B cable trays in Fire Area One required for safe shutdown and cooldown. The proposed modification is to install a two inch layer of Fiberfrax Hot Board manufactured by the Carborundun Company. The insulation will be jacketed with .016" stainless steel sheets held in place with stainless steel bands. This is the same insulation system that was tested in test set-up one, conduit insulation fire test number 2 in the District's Fire Stop Test Report submitted to the NRC on March 1, 1978. As indicated in the report the average temperature of the oven

A006
S
1/40

the conduit was being tested in increased from 58°F to 1767°F for the duration of the test which was approximately 93 minutes. Within 5 minutes after the start of the test the average temperature had increased from 58°F to 1027°F. Therefore, the conduit was being tested at an average temperature in excess of 1000°F for 88 minutes. As indicated in the District's Fire Hazard Analysis, the design basis fire in the Fire Area One, the control-room is a 300°F maximum temperature fire with a duration of approximately 15 minutes. Therefore, the design proposed by the District has adequate margin and will accomplish the requirement of protecting channel A, C, and D cables from a fire in the area.

Insulating the conduits will affect the current carrying capacity of the cables in the conduits. Therefore, for each conduit and all the cables in a particular conduit a heat transfer calculation will be performed to determine the proper derating factor for the cables to insure that they will not operate above their maximum design temperature with the insulation installed. If the results of the calculations indicate that the existing installed cable cannot operate within its design temperature range due to the insulation, a larger size cable will be installed. The District has not completed these calculations at the present time.

Paragraph 3.1.1(7)

Proposed Modification

Modify lube oil pump control circuits associated with the high pressure injection system to prevent loss due to fires in cabinet HIRC.

Design Details

Figure one indicates a typical elementary drawing for the make-up and high pressure injection pump lube oil pumps. As indicated in the drawing the lube oil pumps can be controlled from either panel HIRC or the 480 volt motor control center S2A1. However, the pumps cannot be controlled from both stations simultaneously. This is accomplished by control switch CS-1 which is a two position, normal-isolate, selector switch. With the switch in the normal position control for the lube oil pumps is at panel HIRC and the controls at the motor control center are inoperative due to the normally open contacts on the position switch which block operation of the local control pushbuttons. With the switch in the normal position a fire in HIRC can cause loss of control of the pumps in the Control Room. However, all that is required to operate the pumps is to place the control switch in the isolate mode which enables the controls at the motor control center and isolates the controls at panel HIRC. There are no open circuit or short circuit failures in panel HIRC which can prevent operation of the pumps when control switch CS-1 is placed in the isolate position. This statement assumes that the open or short circuit failure can occur

before or after the control switch is placed in the isolate position.

Whenever the control switch is placed in the isolated position an audible and visual alarm is received in the control room.

When the operator acknowledges the alarm the audible portion is silenced.

However, the visual indication that the switch is in the isolate position remains until the switch is returned to the normal position.

Paragraph 3.1.1(9)

Proposed Modification

Development of a procedure for placing the diesel generator in operation locally for fires in Control Room panel H2ES.

Design Details

The actual procedure for placing the diesel generator in operation locally for a fire in H2ES will be forwarded to the NRC at a later date for approval. However, the procedure will be based on the following design and approval of the design is required prior to writing the procedure. The items on panel H2ES associated with the diesel generators that require isolation are the diesel generator raise and lower pushbuttons for voltage and governor position, and the open and close pushbutton for the diesel generator supply breaker. The scheme for isolation is shown on Figure 2 and 3. Figure 2 indicates the method for isolating the voltage and governor position raise and lower pushbuttons from the diesel generator local control panel. Control switch CS-1 is a two position switch, normal-isolate. Selector switch in the normal position, control is possible from panel H2ES and the local diesel generator panel H2DGA. However, when it becomes necessary to isolate the local panel from H2ES, this is accomplished by placing the switch in the isolate position. This opens all the normally closed CS-1 contacts in series with the pushbuttons on H2ES and isolates them from the control circuit. There are no open circuit or short circuit failures in panel H2ES which can prevent the operation of the local controls when control switch CS-1 is placed in the isolate position. This statement assumes that the open or short circuit failure can occur before or after the control switch is placed in the isolate position. Placing the switch in the isolate position also will cause an audible and visual alarm in the Control Room. When the operator acknowledges the alarm the audible portion is silenced. However, the visual indication that the switch is in the isolate position remains until the switch is returned to the normal position.

Figure three indicates the isolation scheme for the diesel generator supply breaker. This scheme isolates the open and close pushbuttons and lights using the same design as detailed above for the

raise and lower pushbuttons.

Paragraph 3.1.23(2) and 3.1.24(2)

Proposed Modification

Arrange for tripping of diesel generator fuel oil pumps by actuation of the CO_2 system.

Design Details

Figure Four indicates a typical elementary diagram for a diesel generator fuel oil pump. For normal operation relay contact CO2AY is normally open, relay contact K1 is normally closed. In this configuration the fuel oil pumps are operated either by the flip pack unit or by placing the hand-off auto switch in the hand position and energizing the contactor coil 42 which closes contacts to start the fuel oil pump. Activation of the CO_2 system will cause relay contact K1 to open and with relay contact COZAY open the diesel fuel oil pumps will not operate. However, if a safety features activation signal (SFAS) is present or there is a loss of voltage on the 4160 volt safeguard bus, relay contact COZAY will close allowing operation of the diesel fuel oil pumps even if a CO_2 system has activated. To prevent operation of the diesel fuel oil pumps with a SFAS or an undervoltage condition present lowers the overall safety of the plant since the diesel generators are required to be available under these conditions and loss of the fuel oil pumps can lead to the diesel being inoperative within two hours.

Paragraphs 3.1.31(1) and 5.15.6 indicated that the District will install calcium silicate insulation and stainless steel jacket on copper silver soldered pipe associated with the nuclear service raw water cross tie in fire areas 58, 50, and 49 and 48.

In preparing to do this work, it was found that the radiation levels in the vicinity of the cross tie piping located in fire area 50 were extremely high. Our estimate of the exposure necessary to comply with the requirements referenced above was a total of 80 man rem.

Because of this extremely high exposure and the requirements of the ALARA Program, as stated in 10CFR, Part 20, Paragraph 20.1 (C) and Regulatory Guides 8.8 and 8.10, we do not propose to insulate the nuclear service raw water cross time piping in fire area 50.

At the present time the nuclear service raw water cross tie supplying cooling to the make up pump P-236 is normally aligned to the A loop. It can be isolated by double block valves contained in the A high pressure injection pump room and by double block valves contained in the make up pump room fire areas 48 and 58. We propose to alter our normal plant configuration to keep this cross tie isolated in both ends except when the make up pump is operating as a high pressure injection pump due to an outage of one of the two high pressure injection pumps.

We do not feel that deleting the insulation from the section of the cross tie piping in fire area 50 significantly affects the safety of the plant. Please note in the District's Fire Hazards Analysis that the projected fire for this room is estimated to have a duration of 15 minutes and a peak temperature of 250°F. Because of the heat sink available in the water contained in the piping and the relatively small magnitude of the design basis fire possible, we do not feel that this section of the piping would be lost even if a design basis fire did occur. Our initial proposal to insulate this piping provided a degree of conservatism that is not essential to preserving the ability to shutdown and cool down the plant in the event of the postulated design basis fires.

The nuclear service raw water cross tie piping contained in fire areas 58, 49 and 48 (make up pump room, west mechanical penetration area and a high pressure injection room) will be insulated as originally proposed. This will provide adequate protection for the 1500°F fire projected for these rooms.

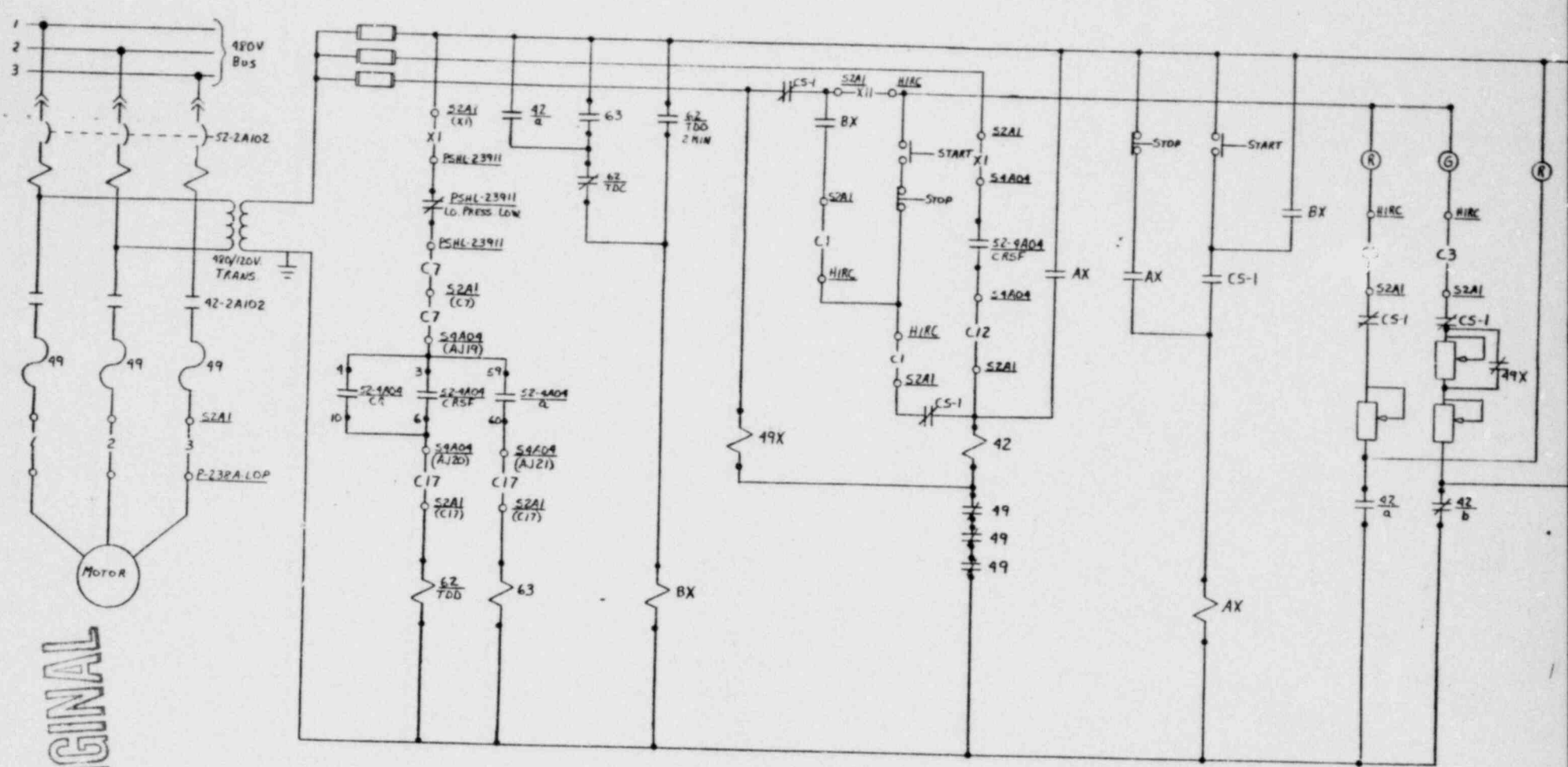
In view of the requirements of the ALARA program and considering the realignment of the cross tie block valves, the magnitude of the fire possible and the probability of a fire occurring when the cross tie is in service, it is felt that the 80 man rem exposure that would be required to insulate the piping is unjustifiable.

We, therefore, request that our Licensing Amendment No. 19, paragraph 3.1.31 (1) be revised to delete the reference to fire area 50.

Sincerely yours,

J. J. Mattimoe

J. J. Mattimoe
Assistant General Manager
and Chief Engineer



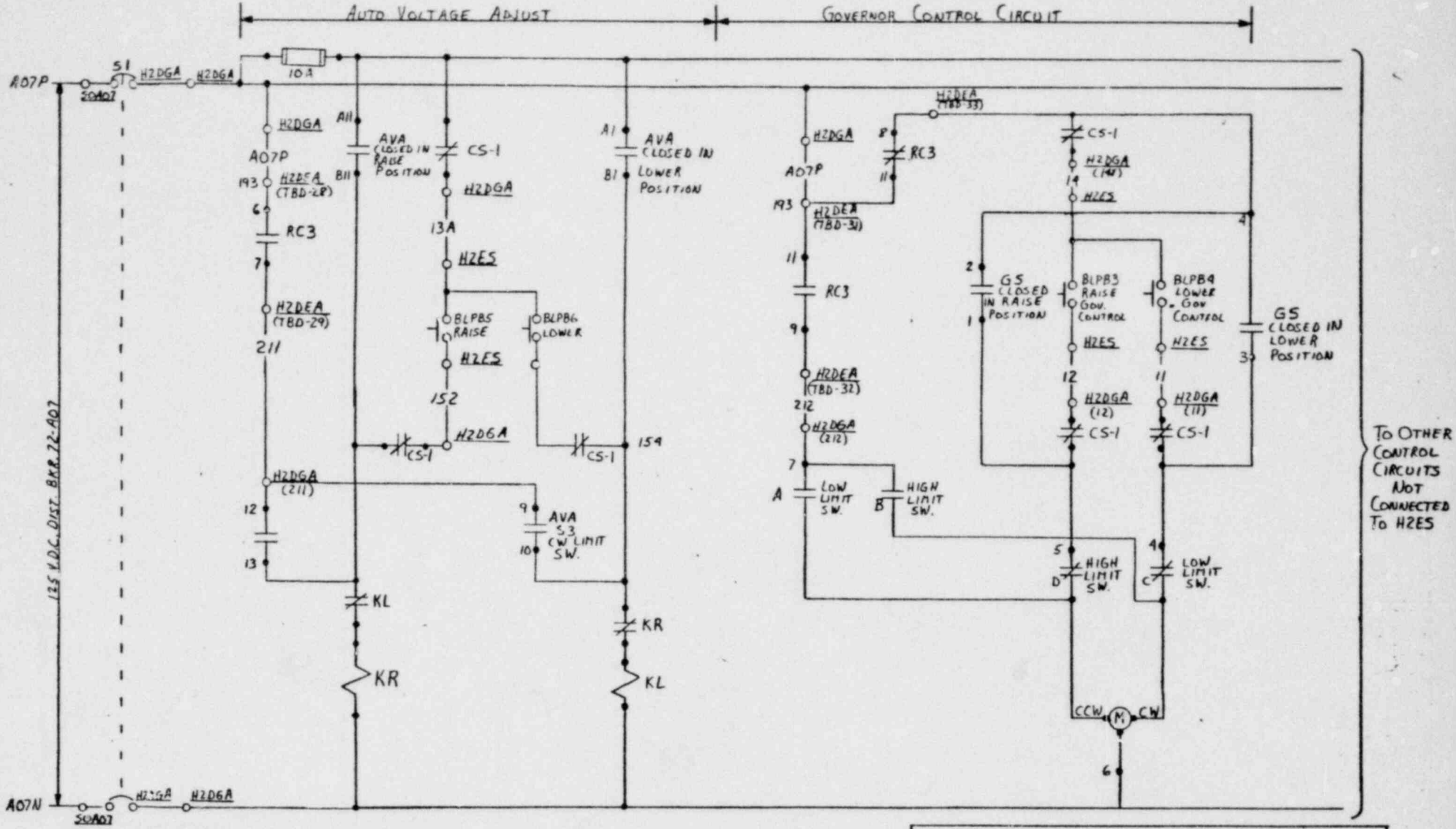
POOR ORIGINAL

NOTE

1. THE NORMALLY CLOSE CS-1 CONTACT IS CLOSED WITH THE CONTROL SWITCH IN THE NORMAL POSITION. IT OPENS WITH THE CONTROL SWITCH IN THE ISOLATE POSITION.
2. THE NORMALLY OPEN CS-1 CONTACT IS OPENED WITH THE CONTROL SWITCH IN THE NORMAL POSITION. IT CLOSES WITH THE CONTROL SWITCH IN THE ISOLATE POSITION.

HIGH PRESSURE INJECTION AND MAKE-UP PUMP LUBE OIL PUMP CONTROL CIRCUIT

FIGURE 1



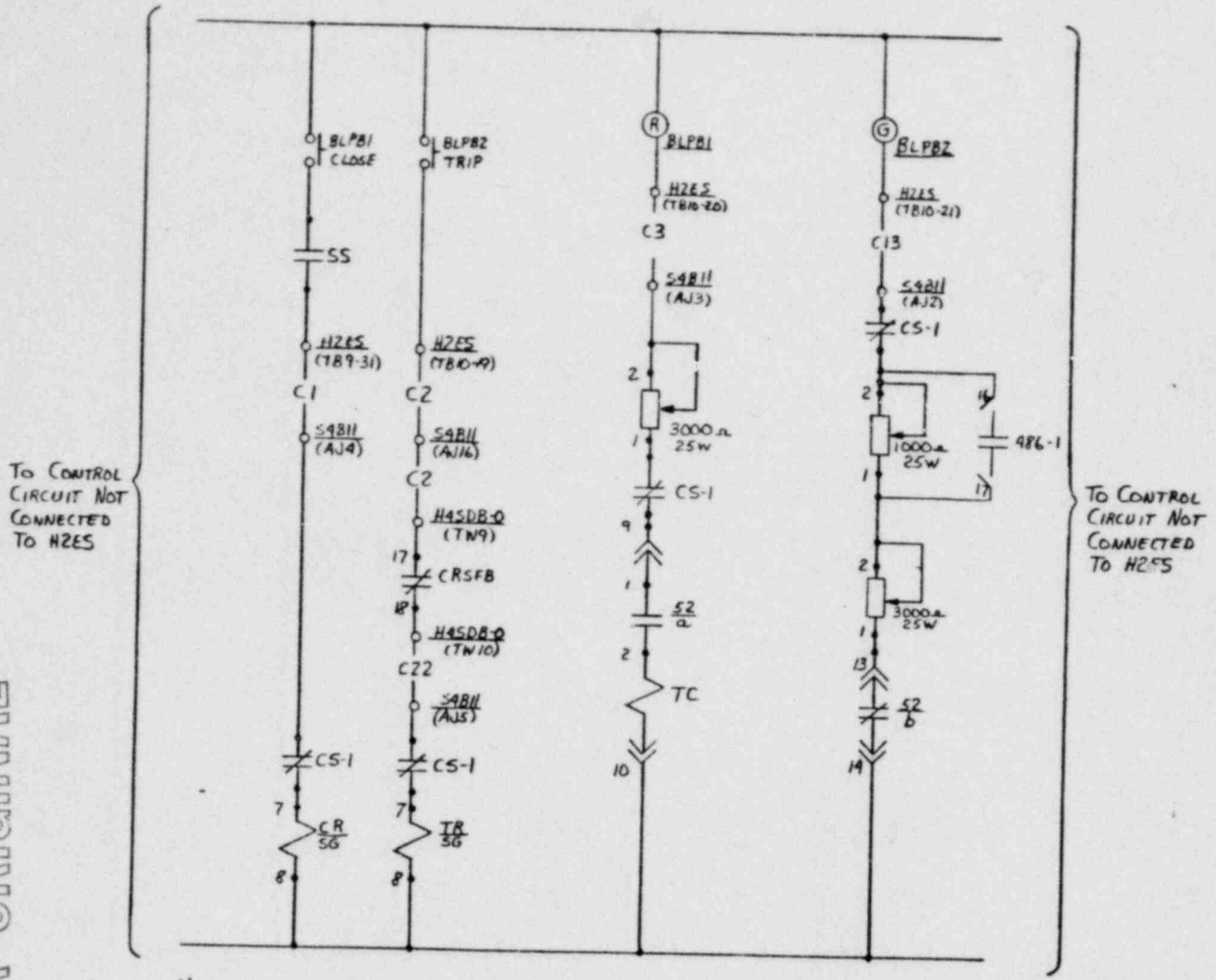
CS-1
PLANT ANNUNCIATOR

NOTE

1. The Normally Closed CS-1 Contact Is Closed With The Control Switch In The Normal Position. It Opens With The Control Switch In The Isolate Position
2. The Normally Open CS-1 Contact Is Open With The Control Switch In The Normal Position. It Closes With The Control Switch In The Isolate Position.

Control Circuit For Diesel Generator Raise & Lower Pushbutton For Voltage And Governors

Figure 2

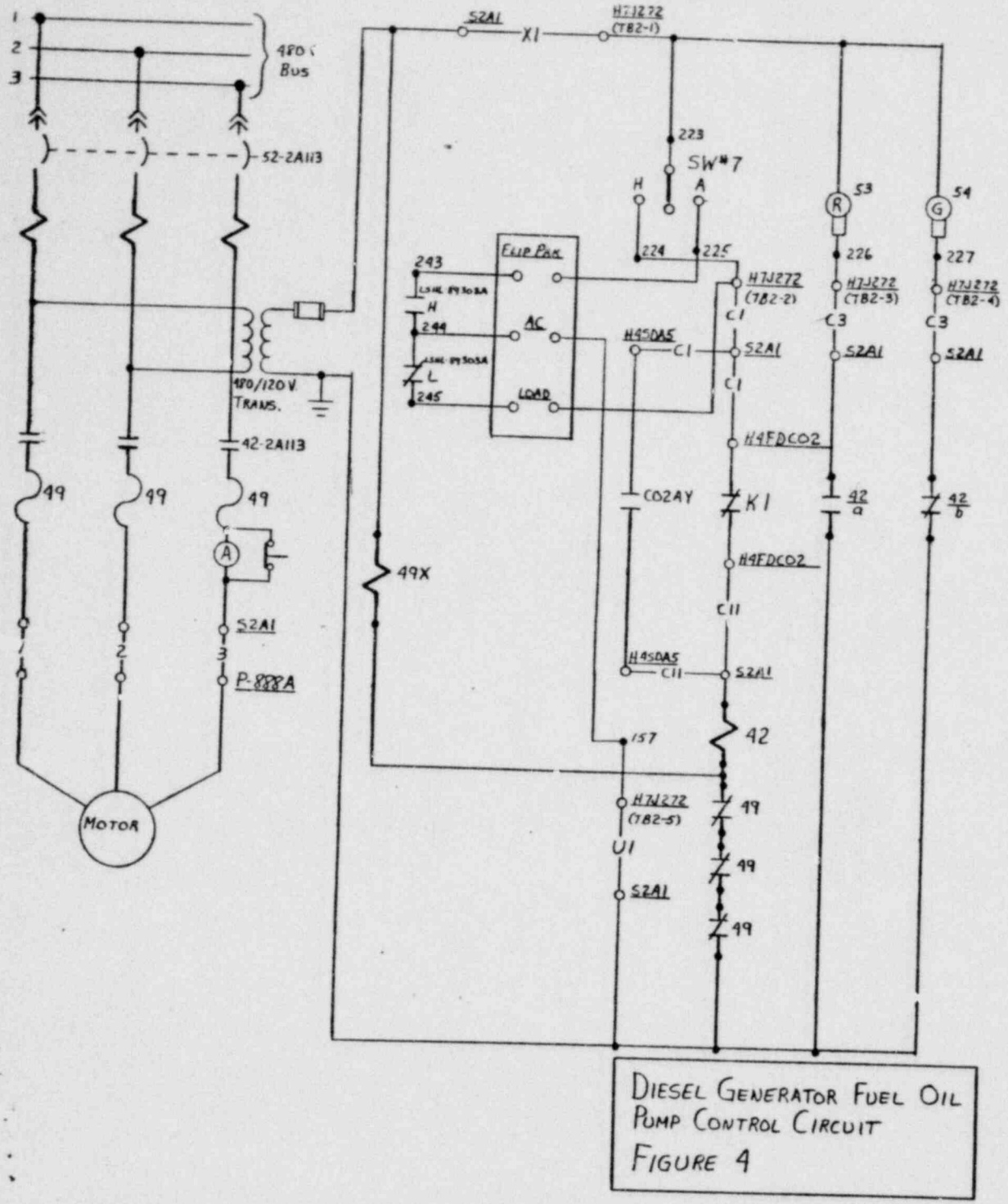


Note

1 The Normally Closed CS-1 Contact Is Closed With The Control Switch In The Normal Position. It Opens With The Control Switch In The Isolate Position.

Partial Schematic For Diesel Generator Supply Breaker

Figure 3



DIESEL GENERATOR FUEL OIL PUMP CONTROL CIRCUIT

FIGURE 4