

POWER AUTHORITY OF THE STATE OF NEW YORK

10 COLUMBUS CIRCLE NEW YORK, N. Y. 10019

(212) 397-6200

TRUSTEES

JOHN S. DYSON
CHAIRMAN

GEORGE L. INGALLS
VICE CHAIRMAN

RICHARD M. FLYNN

ROBERT I. MILLONZI

FREDERICK R. CLARK



October 23, 1980
IPN-80-95

GEORGE T. BERRY
PRESIDENT & CHIEF
OPERATING OFFICER

JOHN W. BOSTON
EXECUTIVE VICE
PRESIDENT & DIRECTOR
OF POWER OPERATIONS

JOSEPH R. SCHMIEDER
EXECUTIVE VICE
PRESIDENT & CHIEF
ENGINEER

LEROY W. SINCLAIR
SENIOR VICE PRESIDENT
& CHIEF FINANCIAL
OFFICER

THOMAS R. FREY
SENIOR VICE PRESIDENT
& GENERAL COUNSEL

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

Attention: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing

Subject: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Electrical Override/Bypass Aspects of ESFs

Dear Sir:

This letter responds to your August 29, 1980 letter re-
garding the subject concern.

Attachment I includes the Authority responses to each
request for additional information.

Very truly yours,


J. P. Bayne
Senior Vice President
Nuclear Generation

cc: Mr. T. Rebelowski
Resident Inspector
U. S. Nuclear Regulatory Commission
P. O. Box 38
Buchanan, New York 10511

A001
s
1/1

P

8010280 383

ATTACHMENT I

ELECTRICAL OVERRIDE/BYPASS ASPECTS OF THE
ENGINEERED SAFETY FEATURES

POWER AUTHORITY OF THE STATE OF NEW YORK
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
OCTOBER 15 , 1980

1. Are all components of the Containment Ventilation Isolation (CVI), Containment Isolation (CI), Safety Injection (SI) and Containment Spray (CS) systems safety grade from the sensors to final electrical control device? In particular, are these components environmentally and seismically qualified for the conditions that could be expected after postulated accidents? (It appears, for example, that the radiation monitoring instrumentation for the CVI System is not safety grade).

RESPONSE:

The components of the Containment Isolation, both Phase A and Phase B, Safety Injection, Containment Spray, and Containment Ventilation Isolation Systems are safety grade from the sensors to the final electrical control device with the exception of the radiation monitoring instrumentation for the Containment Ventilation Isolation system.

The sensor components of the Containment Isolation, Phase A and Phase B, Safety Injection, Containment Spray and Containment Ventilation Systems with the exception of the radiation monitoring instrumentation of the Containment Ventilation Isolation System have been environmentally qualified. The qualification of the sensor components has been documented in the responses to IE Bulletins 79-01B, and in the Systematic Evaluation Program (SEP) Environmental Qualification Report. The electrical control devices of these systems, i.e., logic and actuation schemes, which are located within the confines of the control room were designed to function in that ambient condition and are not subjected to the harsh environments that are specified in the above mentioned documents.

The sensor components and the electrical control devices of these systems have been seismically qualified with the exception of the radiation monitoring instrumentation system. The qualifications of these components have been documented in WCAP 7817, including Supplement 1 through 8 and WCAP 8673.

2. It appears that if the CVI reset pushbutton is depressed while an automatic safety signal is present, the system is placed in a bypass condition. In this condition all other safety signal inputs except high radiation/particulate, are blocked.

RESPONSE:

The actuation of the reset pushbutton in the Containment Ventilation Isolation System while an automatic safety signal, either Containment Spray or Containment Isolation Phase A, is present, will place the system in a block condition such that upon actuation of the other safety signal input the system will not perform its intended safety function. This block condition will be prevented from occurring by the removal of the reset relay, V1-R and V2-R, and the associated contacts in the actuation scheme. See Figure 1.1.

The removal of the reset relays and their associated contacts in the actuation scheme will be completed during a scheduled outage of sufficient duration.

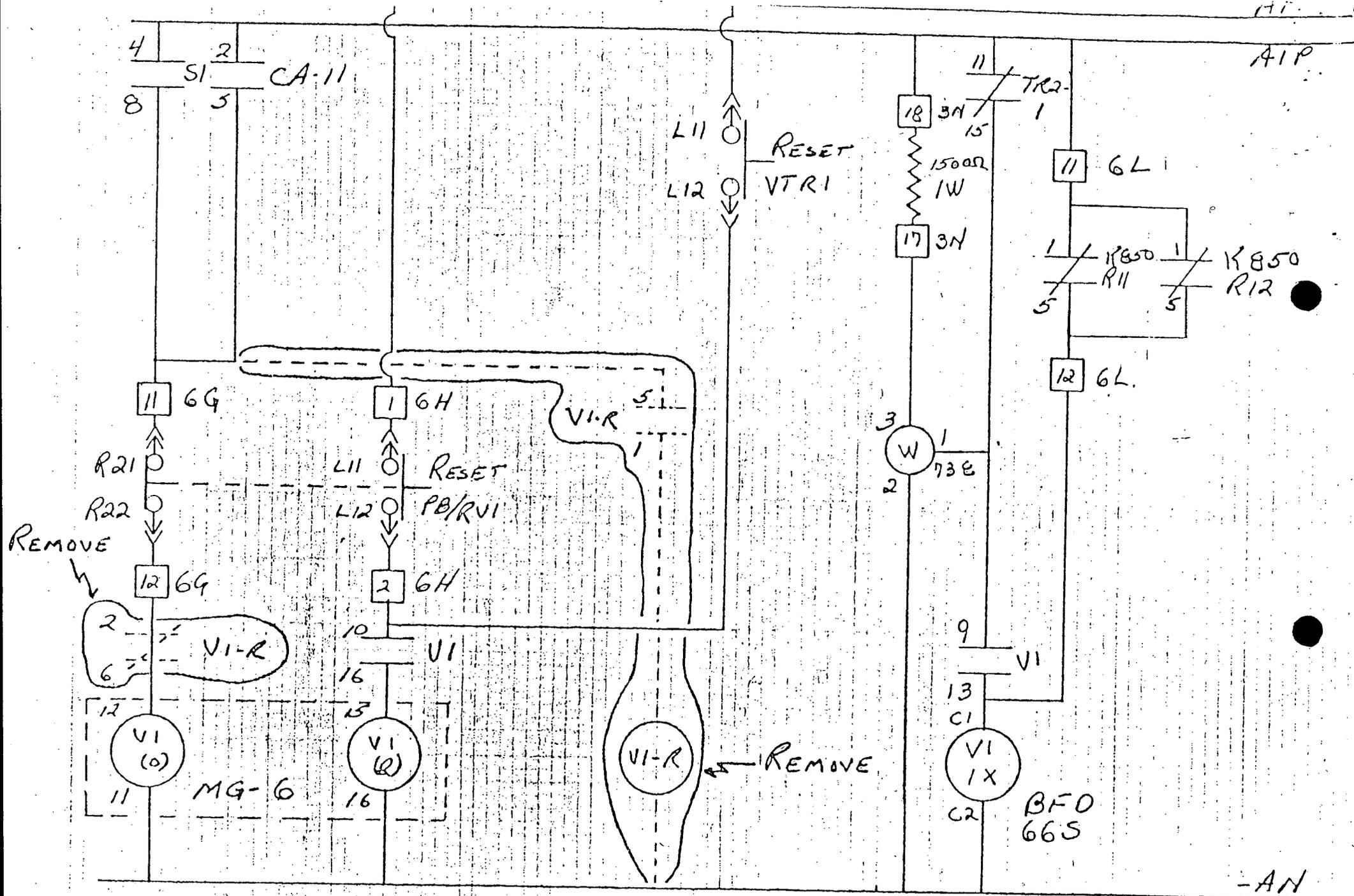


Figure 1.1

PROPOSED MODIFICATION TO
CONTAINMENT VENTILATION TERMINAL

-AN

3. It appears that overriding the automatic safety signal for the CS and CI Phase A systems also blocks manual actuation and other automatic safety signals. You have already been asked by letter of August 20, 1980 to propose a modification to correct the blocking of the manual actuation. In addition, describe your proposed modification to correct the blocking of other automatic safety signals. If other Engineered Safety Features (ESF) have similar problems, propose modifications to correct them.

RESPONSE:

The overriding of the Automatic Safety Signals for the Engineered Safety Features blocks manual actuation and Automatic Safety Signals of certain systems provided the Safety Injection System is not reset. The resetting of the Safety Injection System is specified to be performed by the operators in the Plant Emergency Procedures to gain control of the plant and to recover from the accident.

The actuation of the reset pushbuttons in the Containment Spray and the Containment Isolation Phase A systems while an automatic safety signals is present will block the manual actuation scheme of these systems. The actuation of the reset pushbutton in the Containment Isolation Phase B system while an automatic safety signal is present will block the system from reactivation until the Containment Spray System is reset.

The installation of an additional set of normally closed contacts on the manual pushbuttons in the Containment Spray and Containment Isolation Phase A systems that are wired in series into the coil energization circuitry of the reset relays will eliminate the block on manual actuation. See Figures 3.1 and 3.2.

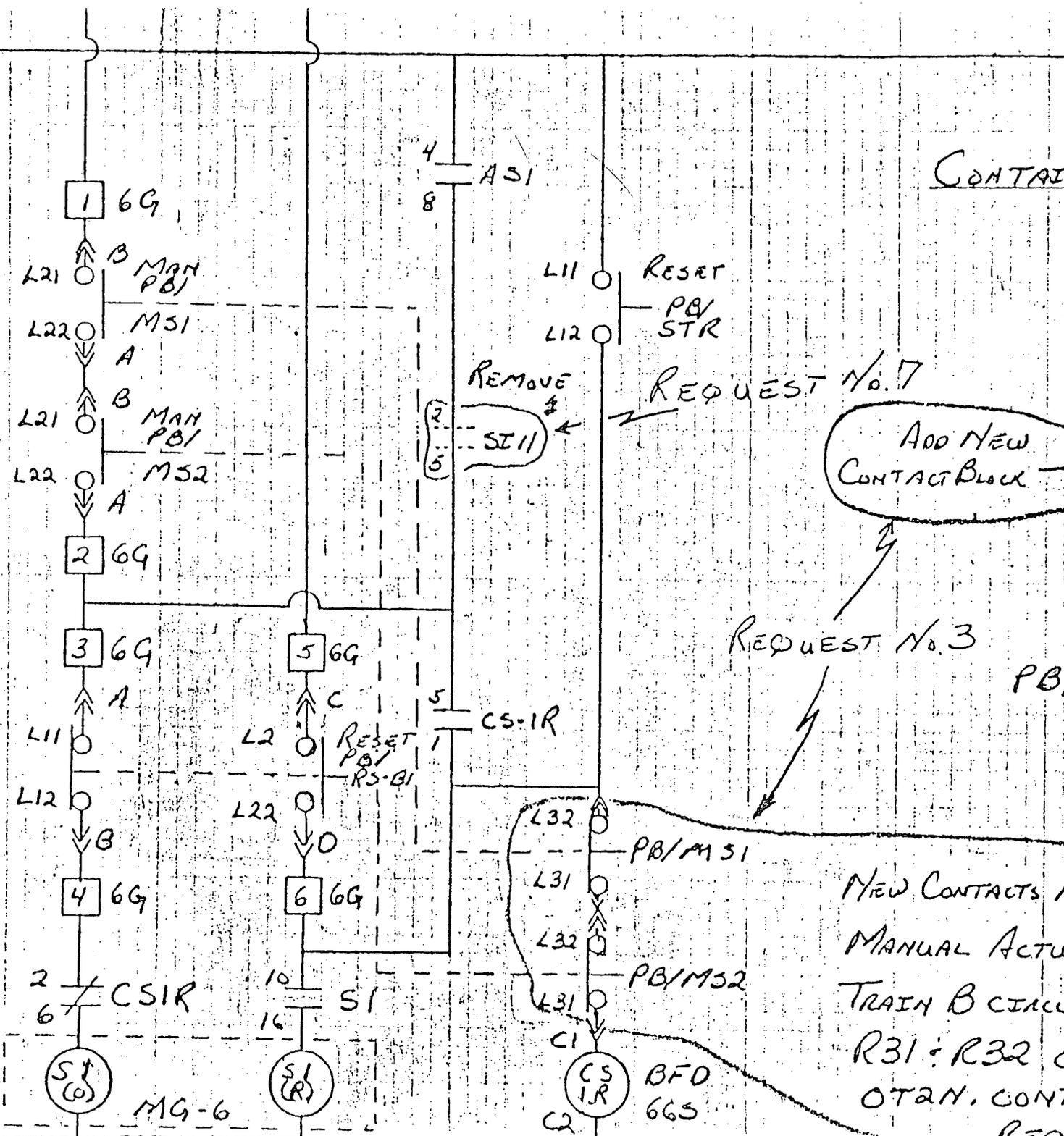
The installation of manual pushbuttons with the set of normally closed contacts that are wired in series into the coil energization circuitry of the reset relay will provide the Containment Isolation, Phase B system with manual actuation capability. Independent of the automatic actuation status. See Figure 3.3.

The actuation of the Containment Spray System requires both Safety Injection Signal and Containment High-High Pressure Signal to be present. The Safety Injection Signal may be reset before precluding automatic actuation of the Containment Spray System. The proposed modification to the actuation scheme to correct this problem is given in the response to request No. 7.

The overriding of one of the two Automatic Safety Signals for the Containment Ventilation Isolation System will block the other Automatic Safety Signal from actuating the Containment Ventilation Isolation System. The proposed modification to the actuation scheme to correct this problem is given in the response to request No. 2.

The modifications to the Containment Spray and the Containment Isolation, both Phase A and B system will be completed during the next scheduled outage of sufficient duration.

AIP



CONTAINMENT SPRAY

CONTACT BLOCK	CIRCUIT POSIT.	
	L	R
1st OT2M		
2nd OT2M		
3rd OT2N		
MANUAL OPERATION	PUSHBUTTON SW OT2R	

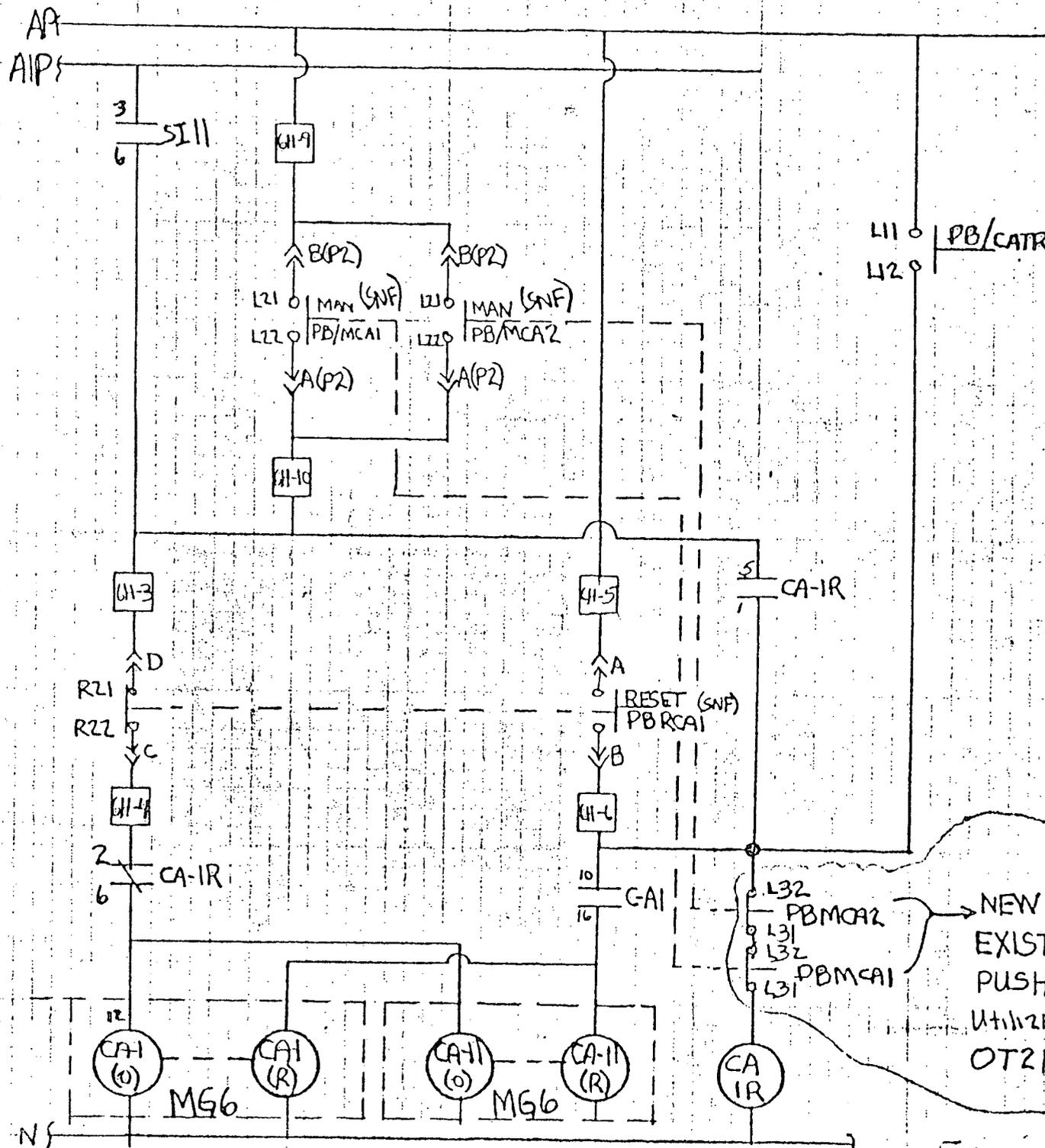
ADD NEW CONTACT BLOCK

REQUEST No. 3

SWITCH DEVELOPMENT
PB/M51, PB/M52

NEW CONTACTS ADDED TO EXISTING
MANUAL ACTUATION PUSHBUTTONS
TRAIN B CIRCUIT UTILIZES
R31 - R32 CONTACTS OF NEW
OT2N. CONTACT BLOCK
REQUIRED

AN



CONTAINMENT PHASE A ISOLATION

CONTACT BLOCK	CIRCUIT POSITION			
	L		R	
1 st Block (FRONT) OT2M				
	L12 L11	R11 R12	N.O.	N.O.
2 nd Block OT2M				
	L22 L21	R21 R22	N.O.	N.O.
3 rd Block OT2N				
	B2 B1	R31 R32	N.C.	N.C.
MANUAL Pushbutton SW OPERATOR-OT2B2				

ADD NEW CONTACT BLOCK

SWITCH DEVELOPMENT
PB/MCA1, PB/MCA2

NEW CONTACTS ADDED TO EXISTING MANUAL ACTUATION PUSHBUTTONS. TRAIN B CIRCUIT UTILIZES R31 & R32 CONTACTS OF NEW OT2N CONTACT BLOCK REQUIRED

FIGURE 3.2

AIR

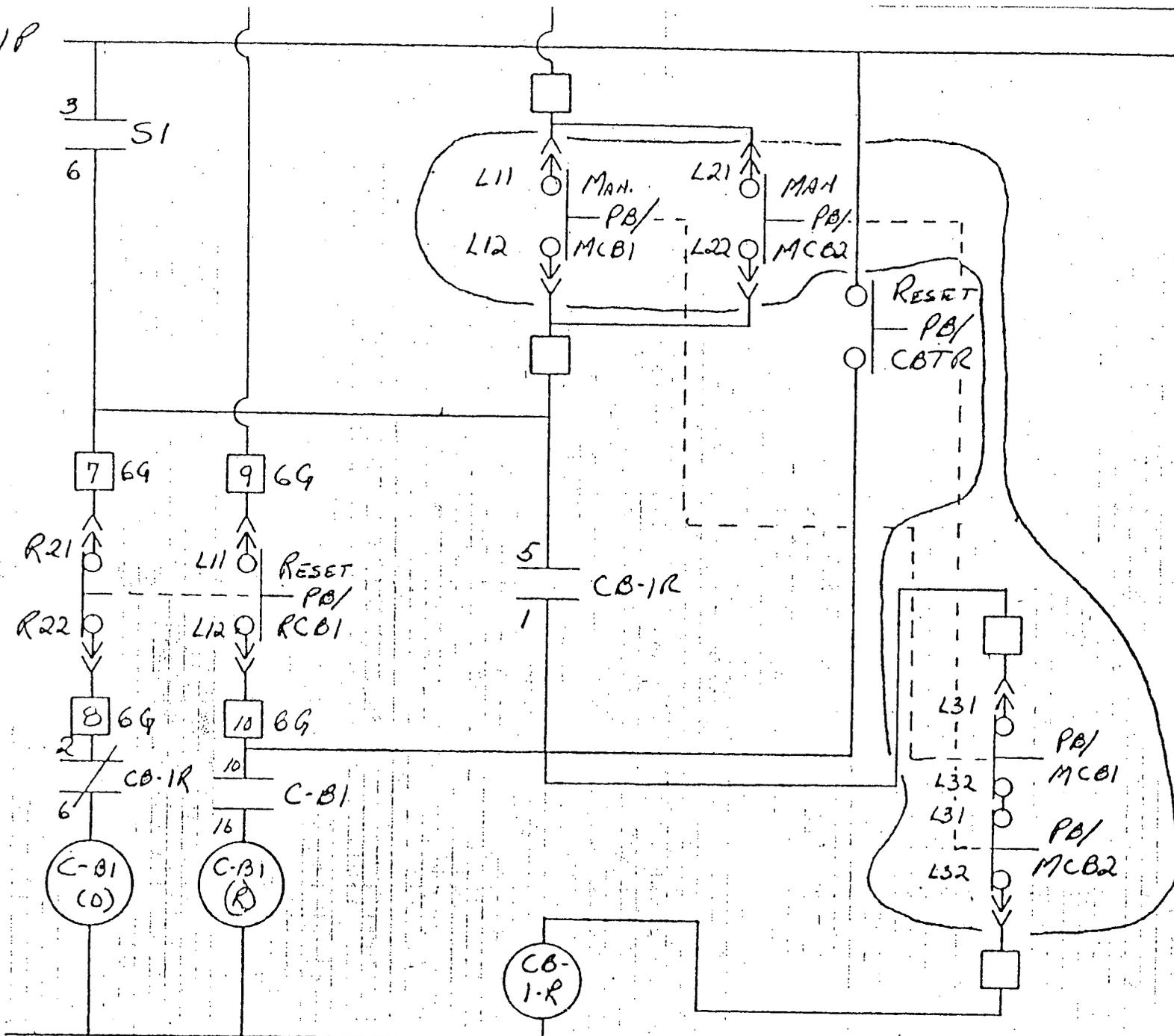


FIGURE 3.3

PROPOSED MODIFICATION TO
CONTAINMENT PHASE B ISOLATION

AM

4. Simple, unprotected pushbuttons, which could be inadvertently pushed are used for reset of CVI and other ESF systems. Describe your proposed modification that will provide sufficient physical features for these switches to facilitate adequate administrative controls.

RESPONSE:

The reset pushbuttons of the Containment Spray, Safety Injection Containment Isolation Phase A and Phase B, and Containment Ventilation Isolation systems are type OT2 pushbuttons with full guards around the button which provides a responsible assurance that the pushbuttons are not inadvertently pushed.

The reset pushbuttons shall be additionally protected with a hinged safety cover that requires deliberate action by the operators to actuate these buttons. These safety covers shall be installed during the October 1980 outage.

5. Overrides of the CVI, CI and CS systems initiated by the reset switches are not annunciated. Describe your proposed modification that will provide system level annunciations for each ESF impacted when any override is active.

RESPONSE:

The Containment Spray and Containment Isolation, Phase A and Phase B systems will be provided with indicating lights that will provide the operator with an indication that the automatic safety signal that actuated the system is overridden. The Containment Ventilation System will not be provided with the indicating lights because the modification proposed in response to request number 3 will prevent the operator from overriding the system once actuated by an automatic safety signal. This system will only be able to be reset after the automatic safety signal has been terminated.

The function of the indicating lights that are being installed on the referenced engineered safety features will be incorporated into the appropriate existing operating procedures. In addition to the revision of the existing operating procedures, the status of these indicating lights will be incorporated into the shift turnover status.

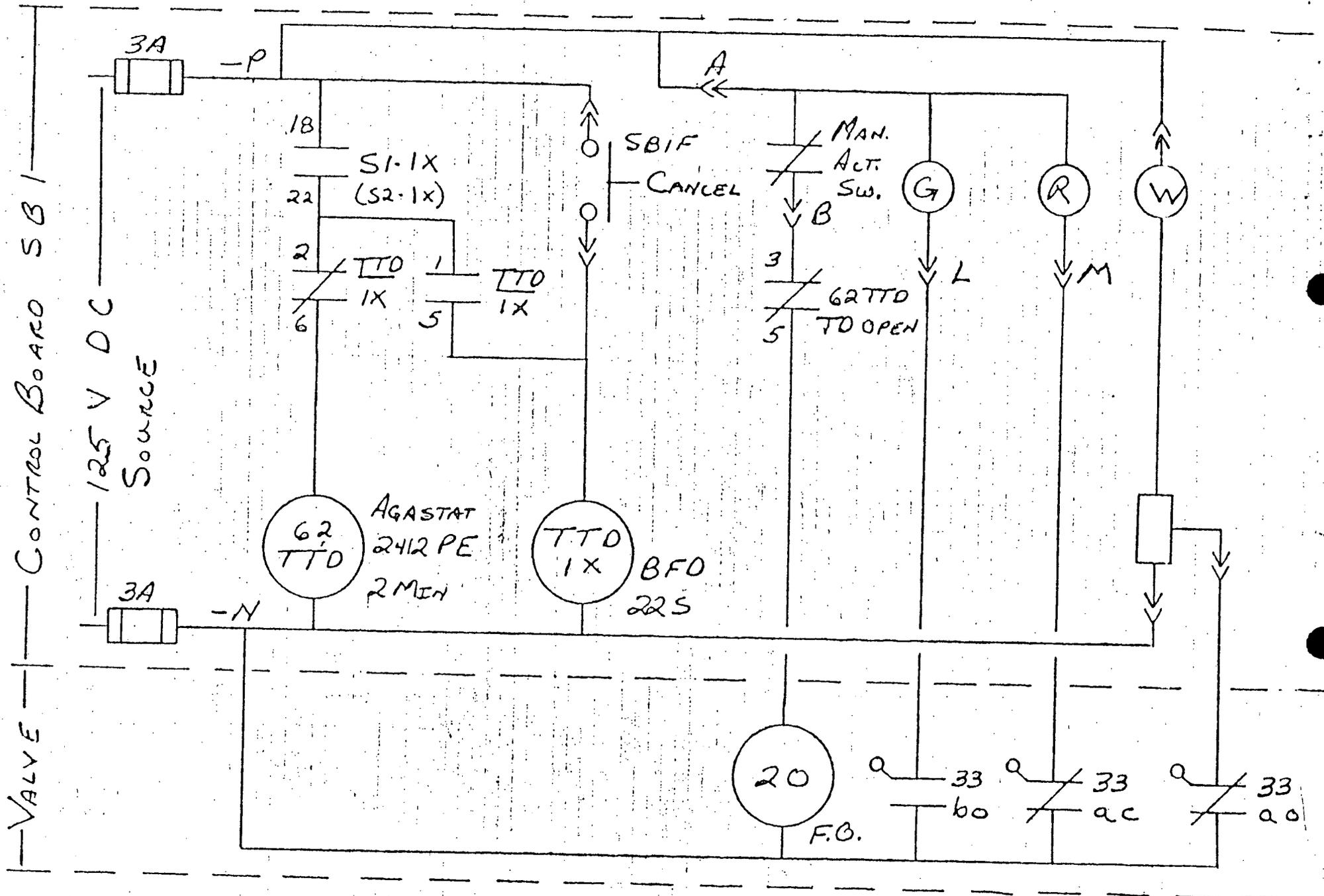
The indicating lights for the Containment Spray and the Containment Isolation, Phase A and Phase B system will be installed during the next scheduled outage of sufficient duration.

6. It appears that the CS valves change position upon overriding or resetting the system. Provide drawings of the CS valve circuitry, and changing position upon override or reset of the system.

RESPONSE:

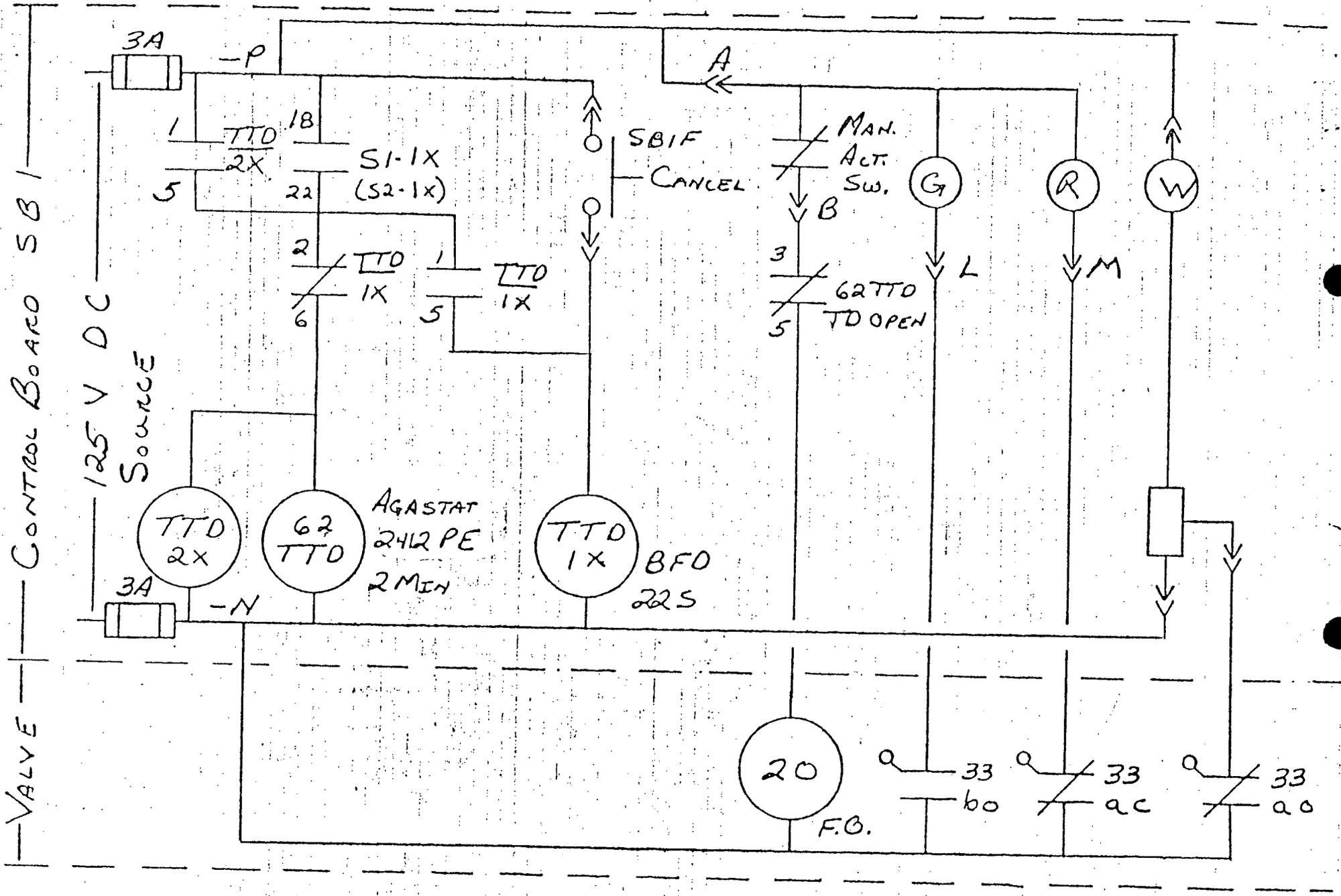
Valves 876A (Train 1) and 876B (Train 2) open two minutes after actuation of the Containment Spray System and will close upon system reset of the containment spray system. The drawing of the containment spray additive valves 876A and 876B is provided in Figure 6.1.

The proposed modification to the circuitry of Valves 876A and 876B to prevent the valves from changing position upon reset of the containment Spray system is shown in Figure 6.2. This modification will be installed during the next scheduled outage of sufficient duration.



VALVES 876A : 876B

FIGURE 6.1



VALVES 876A : 876B

PROPOSED MODIFICATION

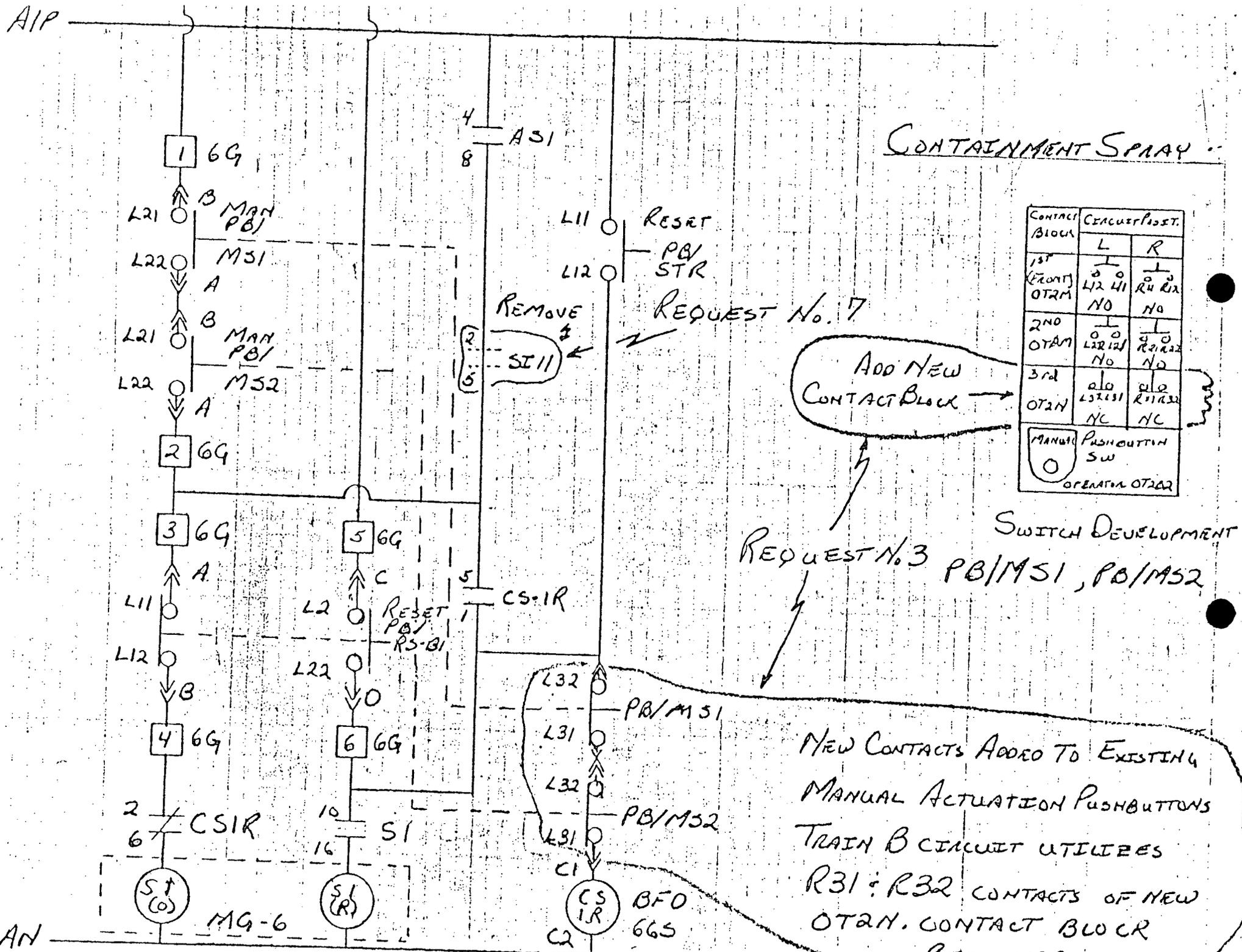
FIGURE 6.2

7. It appears that both an SI signal and a containment high-high pressure signal are required to automatically actuate the CS system. The SI signal may have been re-set before the containment high-high pressure set point is reached, precluding automatic actuation of the CS system. Describe your proposed modification that will allow automatic actuation of this CS system whenever it is required.

RESPONSE:

The contacts that are in the Containment Spray System actuation circuitry from the Safety Injection System Relays, SI 11 and SI 12 will be removed from the actuation circuitry. This modification will ensure that the automatic actuation of the Containment Spray System will energize the system at the Containment high-high pressure set point. See figure 7.1.

The removal of these contacts from the Containment Spray circuitry will be completed during a scheduled outage of sufficient duration.



CONTAINMENT SPRAY

CONTACT BLOCK	CIRCUIT POS.	
	L	R
1st FRONT OT2M	L12 L11 NO	R4 R3 NO
2ND OT2M	L2 R2 NO	R1 R2 NO
3rd OT2N	L3 L1 NC	R1 R2 NC

MANUAL PUSH OUT IN SW OPERATION OT2R

SWITCH DEVELOPMENT

REQUEST No. 3 PB/MS1, PB/MS2

NEW CONTACTS ADDED TO EXISTING MANUAL ACTUATION PUSHBUTTONS TRAIN B CIRCUIT UTILIZES R31 & R32 CONTACTS OF NEW OT2N. CONTACT BLOCK REQUIRED

FIGURE 41

8. Provide drawings showing the circuitry which operates relay 42A/CBPF.

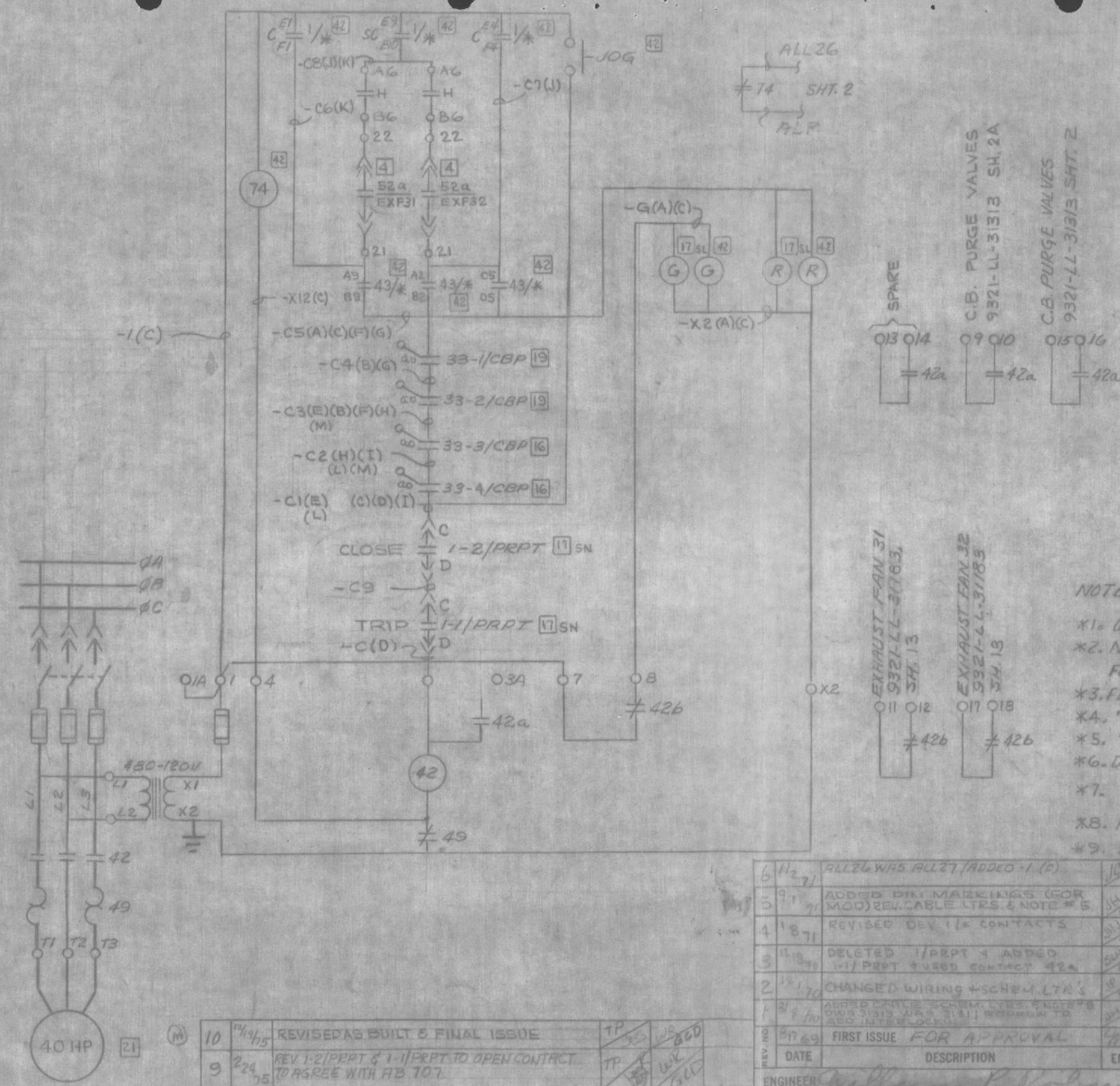
RESPONSE:

Drawing Number 9321-LL-31273 sheet No. 7, "Schematic Diagram 480V. Motor Control Center 37" shows the circuitry of the Containment Building Purge Supply Fan (CBPF) and is attached for your information.

INFORMATION ONLY
Not For Installation

REMOTE

MCC 97, COMPT. BFE



NOTES

- *1. WIRE DESIGNATIONS ARE TO BE PREFIXED WITH 312FE--
- *2. NUMBERS IN SQUARES REFER TO EQUIPMENT LOCATION. FOR LEGEND SEE SHT. 1.
- *3. FOR DEVICE 52/EF31, SEE 9321-LL-31183, SH. 10
- *4. " " 52/EF32, " " " " " 13
- *5. " " 33-1, 33-2, 33-3, 33-4/CBP, SEE 9321-LL-31313, SH. 2 & 2A
- *6. DEV. 1/4 = 1/EXF, SEE 9321-LL-31183, SH. 3
- *7. " 43/* = 43/EXF, " " " " " 6
- *8. FOR DEV. I-2/PRPT & I-1/PRPT, SEE 9321-LL-31313 SH. 2A
- *9. LETTER (A) ETC. REFERS TO CABLE SCHEMATIC SHT. 7A.

10	12/1/75	REVISED AS BUILT & FINAL ISSUE	TP	DES	WR	GED
9	2/24/75	REV. I-2/PRPT & I-1/PRPT TO OPEN CONTACT. TO AGREE WITH AB 107	TP	DES	WR	GED
8	1/12/72	EXF31 WAS EF31, EXF32 WAS EF32, 22 WAS 21, 21 WAS 22, REV. CABLE LTRS AT -C1, -C9, -C.	T.A.M.	BCH	WR	GED
7	11/23/71	REV. 1/* CONTACTS	WR	DES	WR	GED

6	11/2/71	ALL26 WAS ALL27 (ADDED -I (P))	WR	DES	WR	GED
5	9/1/71	ADDED DIM. MARKINGS (FOR MOD) REV. CABLE LTRS. & NOTE # 5	JHL	BCH	WR	GED
4	1/8/71	REVISED DEV. 1/* CONTACTS	JHL	BCH	WR	GED
3	12/18/70	DELETED I/PRPT & ADDED I-1/PRPT & USED CONTACT 42a	JHL	BCH	WR	GED
2	12/1/70	CHANGED WIRING + SCHEM. LTRS.	JHL	BCH	WR	GED
1	3/1/70	ADDED CABLE SCHEM. LTRS. & NOTE # 9 (9321-LL-31313) REVISED TO ADD INTERLOCKS	JHL	BCH	WR	GED
REV. NO.	57	FIRST ISSUE FOR APPROVAL	WR	DES	WR	GED
DATE	5/7/69					
ENGINEER	William P. Robinson					
STATE REG.	NEW YORK NO. 42953					
UNITED ENGINEERS & CONSTRUCTORS INC.						

C.B. PURGE SUPPLY FAN (CBPF)

WESTINGHOUSE ELECTRIC CORPORATION
FOR
CONSOLIDATED EDISON COMPANY
INDIAN POINT GENERATING STATION - UNIT NO. 3

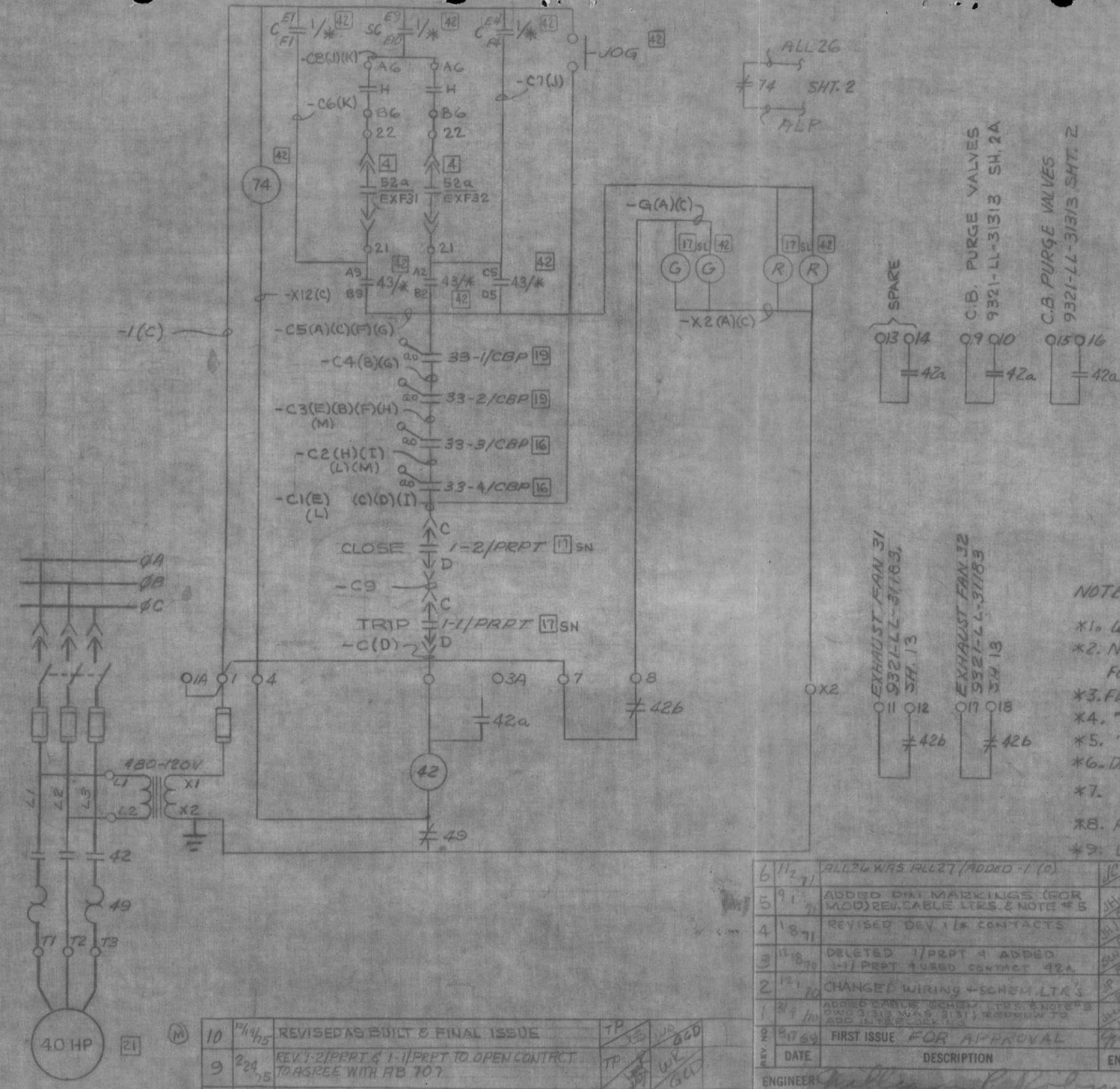
SCHEMATIC DIAGRAM
480V MOTOR CONTROL CENTER 37
SHEET NO. 7

U.E. & C. DWG. NO. 9321-LL-31273	CON. ED. CO. DWG. NO. D202368
--	---

INFORMATION ONLY
Not For Installation

REMOTE

MCC 37, COMPT. 2FE



NOTES

- *1. WIRE DESIGNATIONS ARE TO BE PREFIXED WITH 312FE-
- *2. NUMBERS IN SQUARES REFER TO EQUIPMENT LOCATION. FOR LEGEND SEE SH. 1.
- *3. FOR DEVICE 52/EF31, SEE 9321-LL-31183, SH. 10
- *4. " " 52/EF32, " " " " " 13
- *5. " " 33-1-33-4/CBP, SEE 9321-LL-31313, SH. 2 & 2A
- *6. DEV. 1/* = 1/EXF, SEE 9321-LL-31183, SH. 3
- *7. " 42/* = 42/EXF, " " " " " 6
- *8. FOR DEV. I-2/PRPT + I-1/PRPT, SEE 9321-LL-31313 SH. 2A
- *9. LETTER (A) ETC. REFERS TO CABLE SCHEMATIC SH. 7A.

REV. NO.	DATE	DESCRIPTION	ENGR	SUP ENGR	W
6	11/27	ALL26 WAS ALL27 (ADDED -1 (A))	JC		
5	9/1	ADDED OHM MARKINGS (FOR MOD) REV. CABLE LTRS. & NOTE # 5	JULY		
4	1/8/71	REVISED DEV 1LK CONTACTS	JULY		
3	12/8/70	DELETED I/PRPT 4 ADDED I-1/PRPT 4 USED CONTACT 42A	JULY		
2	12/10	CHANGED WIRING + SCHEM. LTRS	JULY		
1	3/1/70	ADDED CABLE SCHEM. LTRS. & NOTE # 9 DWG 31313 WAS 3131; REDWREN TO ADD INTERLOCK	JULY		
1	9/7/69	FIRST ISSUE FOR APPROVAL	JULY		

REV. NO.	DATE	DESCRIPTION	ENGR	SUP ENGR	W
10	11/4/75	REVISED AS BUILT & FINAL ISSUE	TP		
9	2/24/75	REV. I-2/PRPT & I-1/PRPT TO OPEN CONTACT TO AGREE WITH FB 707	TP		
8	1/12/72	EXF31 WAS EF31, EXF32 WAS EF32, 22 WAS 21, 21 WAS 22, REV. CABLE LTRS AT -C1, -C9, -C	T.A.M.		
7	11/23/71	REV. 1/* CONTACTS	JULY		

C.B. PURGE SUPPLY FAN (CBPF)
WESTINGHOUSE ELECTRIC CORPORATION
FOR
CONSOLIDATED EDISON COMPANY
INDIAN POINT GENERATING STATION - UNIT NO. 3

SCHEMATIC DIAGRAM
480V MOTOR CONTROL CENTER 37
SHEET NO. 7

ENGINEER: *William P. Kolman*
STATE REG. NEW YORK NO. 42953
UNITED ENGINEERS & CONSTRUCTORS INC.

U.E. & C. DWG. NO. 9321-LL-31273
CON. ED. CO. DWG. NO. D202368