FORM 5326

INDIANA & MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT

PROCEDURE COVER SHEET

Procedure No.	**1 THP 6030 IMP.304
Revision No.	0

TITLE PRESSURIZER PORV CABLE REPAIR

SCOPE OF REVISION

SIGNATURES	REVISION NUMBER			
* * * * * *	Rev. 0			
PREPARED BY	J Schwark			
DEPARTMENT HEAD APPROVAL				
INTERFACING DEPARTMENT HEAD CONCURRENCE				
QUALITY ASSURANCE SUPERVISOR APPROVAL				
PLANT NUCLEAR SAFETY COMMITTEE	Mtg: #1911			
PLANT MANAGER APPROVAL				
APPROVAL DATE	5/25/86			
EFFECTIVE DATE	5/29/86			

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INDIANA & MICHIGAN ELECTRIC COMPANY
DONALD C. COOK NUCLEAR PLANT

PRESSURIZER PORV CABLE REPAIR

1.0 OBJECTIVE

1.1 The purpose of this procedure is to provide instruction for the installation of an alternate power supply and control for the Unit 1 pressurizer PORVs (NRV-151, NRV-152 and NRV-153) in the event that fire damage to the PORV cables causes a loss of remote control from the Unit 1 Control Room

1.2 This procedure meets a portion of the requirements specified in 10 CFR 50 Appendix R.

2.0 REFERENCES

2.1 AEP Elementary Diagrams 1-98204, 2-98053.

2.2 AEP Wiring Diagrams 1-97504, 1-97511, 1-97522.

2.3 10 CFR 50, Appendix R, Section III, L.5.

2.4 PMI-2140, Temporary Modifications.

2.5 PMI-2270, Fire Protection.

3.0 EQUIPMENT REQUIRED

3.1 Pressurizer PORV alternate control boxes and cables.

3.2 Standard 6" flathead screwdriver or equivalent.

3.3 Fuses (10 AMP) and fuse pullers.

3.4 D.C. Voltmeter, Simpson 260 or equivalent.

3.5 Electrical jumpers.

4.0 PREREQUISITES

4.1 Performance of this procedure may take place if remote control for any or all of the pressurizer PORVs (NRV-151, NRV-152, and NRV-153) is lost from the Unit 1 Control Room due to fire damage to the PORV cables. If remote control to all three (3) PORVs is not planned to be altered at this time, a N/A shall be placed as designated in the portions of this procedure which will not be performed.

4.2 Ensure a Security Guard is stationed at Security doors to be blocked open and that firewatches are stationed as necessary in the Unit 1 Reactor Cable Tunnel and in the Unit 2 Switchgear areas prior to routing cables.

4.3 Shift Supervisor (or Assistant Shift Supervisor) permission to begin work on the following valve controls: (cross out the valves not to be altered at this time)

NRV-151 NRV-152 NRV-153

SS/ASS_____ DATE_____

4.4 Obtain the Unit 1, Unit Supervisor (or designee) permission to begin work.

US_____ DATE_____

5.0 PRECAUTIONS

5.1 When routing temporary cables, do not obstruct walkways. Cables shall be routed off to the side or overhead when possible.

5.2 Though the circuits being worked on are de-energized, other circuits in close proximity may have voltages present; observe all electrical safety precautions while working on or near energized equipment.

5.3 Ensure that all connections are clean and tight.

6.0 DOCUMENTATION

6.1 Entries shall be made in the Control Rooms to document the modifications to be installed, and tags placed on the lifted leads, temporary cables and control switches (Reference PMI-2140).

6.2 Upon completion, this procedure shall be submitted to a C&I Engineer or designated alternate for review.

7.0 PORV ALTERNATE CONTROL INSTALLATION

7.1 Ensure that power for the pressurizer PORV (NRV-151, NRV-152 and NRV-153) control circuit(s) to be disconnected from Unit 1 are de-energized by ensuring that the associated circuit breaker in the Unit 1 Control Room is open (OFF position) and a clearance (if time permits) is in place. If the individual valve circuit breakers are not accessible, the control circuits can be de-energized by opening the supply breakers for the entire CCV-AB and CCV-CD distribution panels (MCAB circuit 16 for CCV-AB panel, valves NRV-151 and NRV-152 and MCCD circuit 16 for CCV-CD panel, valve NRV-153). This should only be done after consideration has been given for all other valves that will lose control power.

NA the signoff for the valve circuit(s) not to be altered.

NRV-151 Distribution panel CCV-AB circuit 79 OFF.
(or Distribution Panel MCAB circuit 16 OFF.)

TECH_____ DATE_____

NRV-152 Distribution panel CCV-AB circuit 80 OFF.
(or Distribution Panel MCAB circuit 16 OFF.)

TECH_____ DATE_____

NRV-153 Distribution panel CCV-CD circuit 79 OFF.
(or Distribution Panel MCCD circuit 16 OFF.)

TECH_____ DATE_____

7.2 At the storage box for the pressurizer PORV alternate control equipment (located on the 591 level of the turbine building by the ramp leading down to the diesel room entrances) remove the applicable control boxes and cables. Each control box is labeled with the valve number it will be used for. The attached cables have been precut for correct length, lugged and labeled to aid in installation.

7.3 With the control box(es) remaining at the storage area, route the larger multiple wired cable(s) marked "valve control" down the ramp and up the stairs into the Reactor Cable Tunnel Area 3 through door 339 (ensure CO_2 is properly isolated and firewatch stationed). If NRV-153 control is not to be changed, NA step 7.4.1 and proceed to step 7.5.

7.4 To install the NRV-153 alternate valve control cable, bring the cable up to the terminal block box across from penetration 1-2C4 in Quadrant 3M. With power off to the NRV-153 control (from step 7.1), locate and disconnect all the wires of cable 8757G-1 from the terminal blocks in the box and connect the alternate valve control cable wires and jumpers in its place in accordance with the labeled wires and attachment #1. (Reference can be made to wiring diagram 1-97522).

7.4.1 Verify that cable 8757G-1 is disconnected and that the alternate valve control cable and jumper are installed.

TECH_____ DATE_____

7.4.2 If neither the NRV-151 or NRV-152 alternate valve control cables are to be installed, N/A signoffs for steps 7.6.1 and 7.7.1 and proceed to step 7.8. Otherwise continue with step 7.5.

7.5 To route either or both of the NRV-151 and NRV-152 alternate control cables, proceed into Reactor Cable Tunnel Quadrant 3N through door 323. Continue to pull the cable(s) through Quadrant 4 and into Quadrant 1 through door 333. If NRV-151 control is not to be changed, N/A the signoff in step 7.6.1 and proceed to step 7.7; otherwise, continue with step 7.6.

7.6 To install the NRV-151 alternate valve control cable, bring the cable up to the terminal block box across from penetration 1-4C1 in Quadrant 1. With power off the NRV-151 control (from step 7.1), locate and disconnect all the wires of cable 9705R-1 from the terminal block in the box and connect the alternate valve control cable wires and jumper in its place in accordance with the labeled wire and attachment #2. (Reference can be made to wiring diagram 1-97504).

7.6.1 Verify that cable 9705R-1 is disconnected and that the alternate valve control cable and jumper are installed.

TECH_____ DATE_____

7.6.2 If NRV-152 controls are not to be changed, N/A the signoff in step 7.7.1 and proceed to step 7.8; otherwise, continue with step 7.7.

7.7 Continue to pull the alternate control cable for NRV-152 up to the terminal block box across from penetration 1-1C4 in Quadrant 1. With power off the NRV-152 control (from step 7.1) locate and disconnect all the wires of cable 9706R-1 from the terminal block in the box and connect the alternate valve control cable and jumper in its place according to the labeled wires and Attachment #3. (Reference can be made to wiring diagram 1-97511).

7.7.1 Verify that cable 9706R-1 is disconnected and that the alternate valve control cable and jumper are installed.

TECH_____ DATE_____

7.8 With the necessary alternate valve control cable(s) in place return to the storage area and verify that the alternate valve control switches are in the closed position. NA the signoff for the control switch(es) not to be used.

NRV-151 Alternate Control Switch in closed position.

TECH_____ DATE_____

NRV-152 Alternate Control Switch in closed position.

TECH_____ DATE_____

NRV-153 Alternate Control Switch in closed position.

TECH_____ DATE_____

7.9 To obtain 250 VDC power from the Unit 2 Switchgear area, route the cable(s) marked "valve power" from the alternate control switch box(es) to be used, south along the 591 aisleway and up the stairs leading to elevation 609. Continue to route the cable(s) south through rollup door 242 and along the side of the 609 aisleway to security gate door 446 of the Unit 2 Switchgear Rooms. Ensure Unit 2 CO^2 is properly isolated and firewatch stationed. With a Security Guard stationed, have doors 446 and 344 opened and continue to route the cable(s) to the 250 VDC distribution cabinet DAB, located across from the AB battery room and next to the inverter area.

7.10 Remove the front panel cover from cabinet DAB (a ladder may be needed). Ensure that spare breakers 17, 19, and 21 are OFF and fuses are removed.

7.11 The following installations will be made with the NRV-151 power cable going to breaker 17, NRV-152 power cable to breaker 19 and NRV-153 power cable to breaker 21.

7.11.1 On the left side of cabinet DAB connect the valve power cable leads to the breaker fuse lugs with the positive (+) lead on the top lug and the negative (-) lead on the bottom lug.

7.11.1.1 Verify the valve power cables are connected to the proper breaker. N/A the signoff if the valve control is not being altered.

NRV-151 power cable connected to panel DAB circuit 17

TECH_____ DATE_____

TECH_____ DATE_____

NRV-152 power cable connected to panel DAB circuit 19

TECH_____ DATE_____

TECH_____ DATE_____

NRV-153 power cable connected to panel DAB circuit 21.

TECH_____ DATE_____

TECH_____ DATE_____

7.11.2 Install the 10 AMP fuses (provided in the storage box) in panel DAB breaker circuits for each breaker that is being utilized (Two (2) fuses per breaker).

7.11.2.1 Verify the valve power fuses are installed. NA the signoff if the valve control is not being altered.

NRV-151 10 AMP fuses (2) are installed in panel DAB circuit 17.

TECH_____ DATE_____

TECH_____ DATE_____

NRV-152 10 AMP fuses (2) are installed in panel DAB circuit 19

TECH_____ DATE_____

TECH_____ DATE_____

NRV-153 10 AMP fuses (2) are installed in panel DAB circuit 21.

TECH_____ DATE_____

TECH_____ DATE_____

7.11.3 Notify the Unit 2 Control Room to have an Operator close the applicable circuit breaker(s) (ON position).

CAUTION: 250VDC is present at lugs and breaker fuses.

7.11.3.1 Verify the correct circuit breakers are in the ON position and take voltage readings across the cable lugs at the breaker fuses to ensure power is available.

NRV-151 circuit breaker 17 ON and voltage available.

TECH_____ DATE_____

TECH_____ DATE_____

NRV-152 circuit breaker 19 ON and voltage available.

TECH_____ DATE_____

TECH_____ DATE_____

NRV-153 circuit breaker 21 ON and voltage available.

TECH_____ DATE_____

TECH_____ DATE_____

7.12 Replace the front panel cover on cabinet DAB as best as possible, with the valve power cable(s) running out of the bottom of the cabinet.

7.13 The following step will open the pressurizer PORVs. If plant conditions are not suitable to open the PORVs, N/A and explain the plant condition in the signoff in step 7.13.1. N/A the signoff(s) for valve controls not altered.

7.13.1 Check the alternate valve control operation by having an Operator place the alternate control switch(es) of each valve one at a time in the open position and verify the red open light comes on. The valve(s) may be left in the position desired.

NRV-151 alternate control switch to open and red light comes on.

TECH_____ DATE_____

NRV-152 alternate control switch to open and red light comes on.

TECH_____ DATE_____

NRV-153 alternate control switch to open and red light comes on.

TECH_____ DATE_____

7.14 Notify the Unit 1 Control Room that the pressuizer PORV alternate control(s) for (cross out the valve control not altered) NRV-151
NRV-152
NRV-153

is installed and available for operation using the control switch located in Unit 1 on Turbine Building 591 elevation.

US(or designee)_____ DATE_____

7.15 Shift Supervisor (or Assistant Shift Supervisor) notified pressurizer PORV alternate control installation complete.

SS/ASS_____ DATE_____

8.0 Ensure all areas worked are clean and that proper log entries have been made.

ATTACHMENT 1

PENETRATION 1-2C4 BOX B127 1-NRV-153

PENTRATION CONDUCTOR NO.	WIRE NO.
2-1	153+
2-2	153-R
2-3	153-G
2-4	153-4
2-5	153-5
2-6	PZAP
2-7	38
2-8	153+

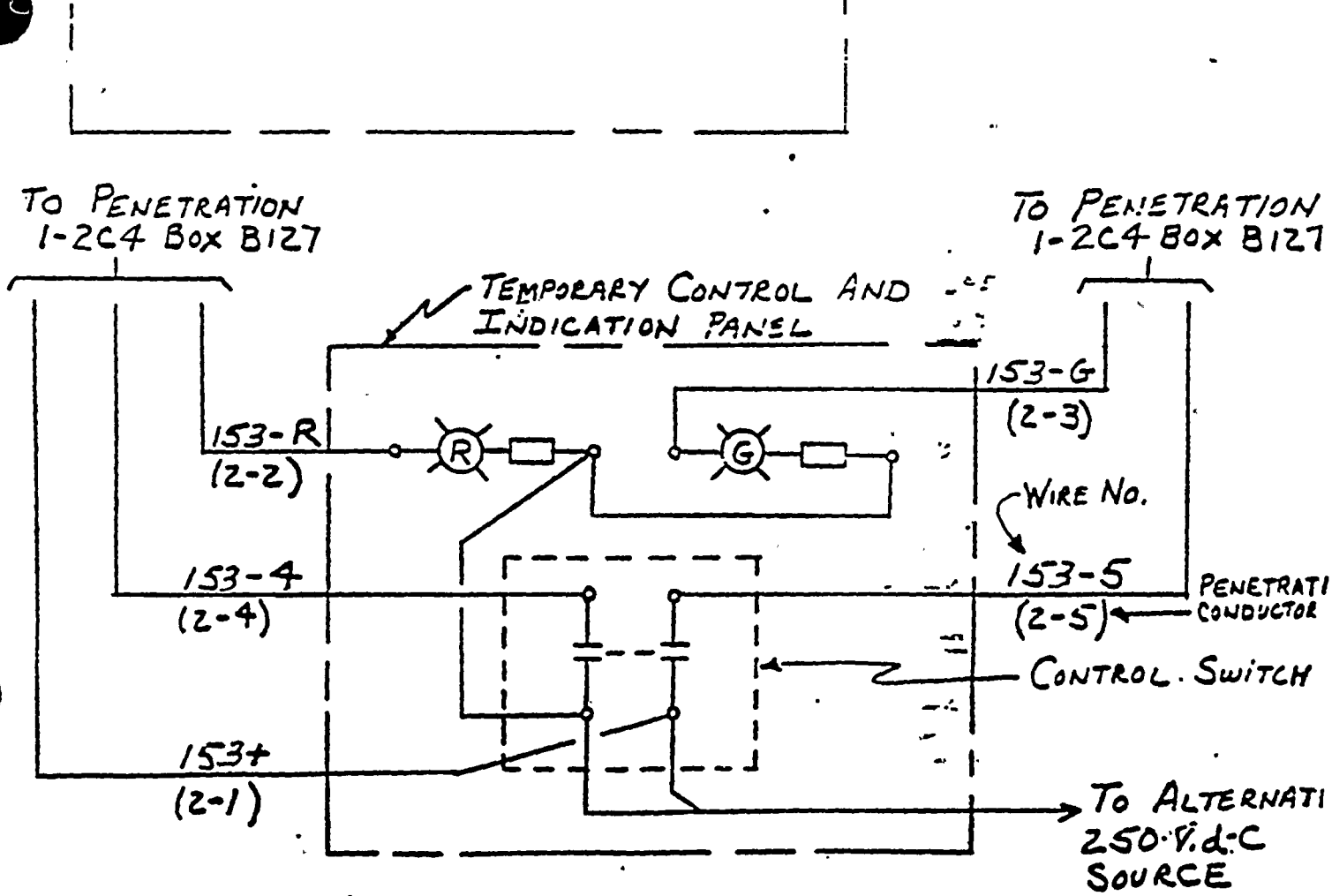
DISCONNECT

R
GN
BK
GY
RYL
GNYL
RGN
RBK

8757 G-1

TO PNL. "PRZ"

INSTALL JUMPER



ATTACHMENT 2 TO TRC

PENETRATION 1-4C1 Box B129: 1-NRV-151

PENTRATION CONDUCTOR NO.	WIRE NO.
7-1	151+
7-2	151-R
7-4	151-G
7-6	151-4
7-7	151-5
7-8	PZAP
7-9	36
7-11	151+

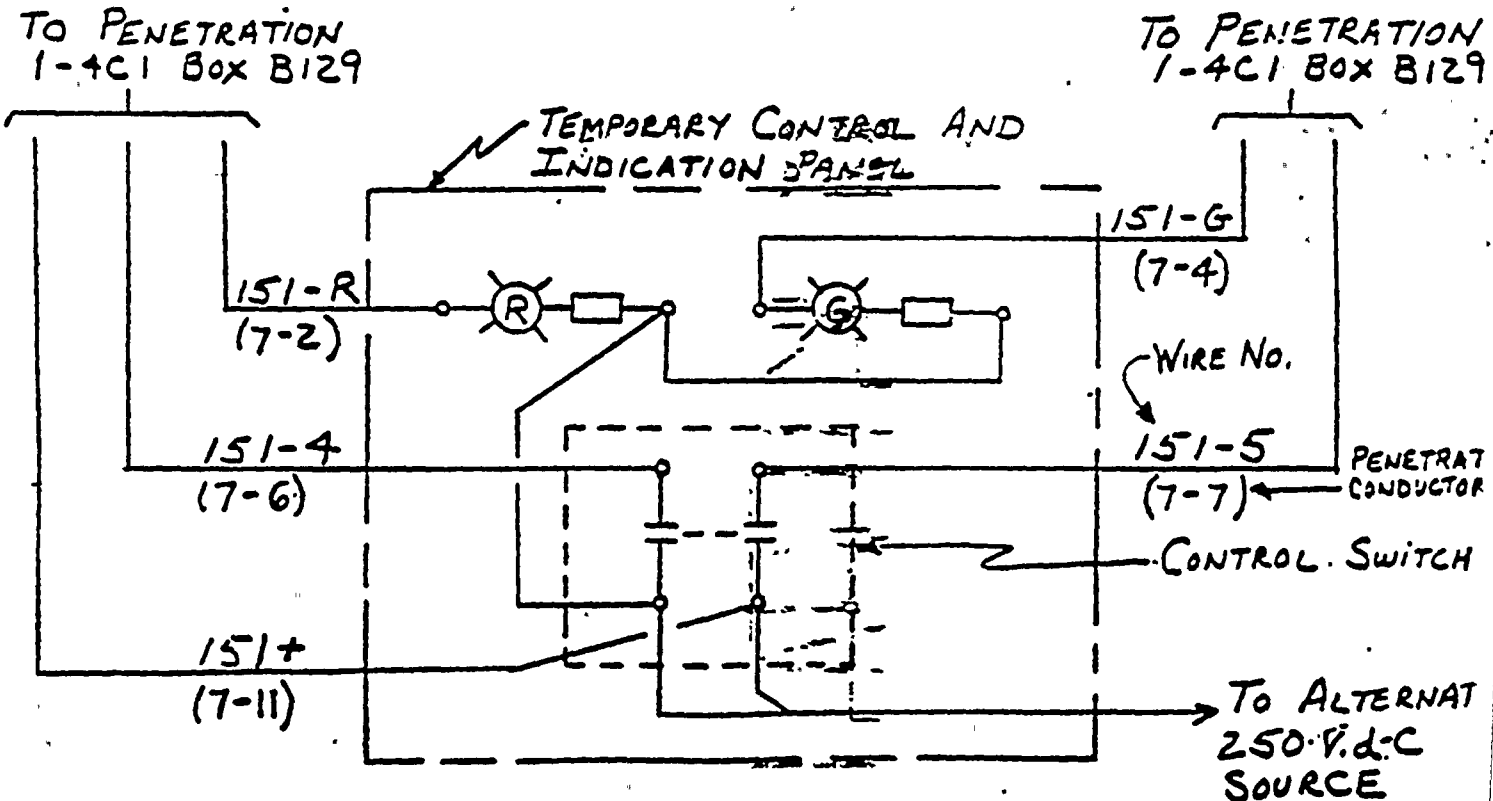
DISCONNECT

R
GN
BK
GY
RYL
GNYL
RGN
RBK

9705 R-1

To PNL. "PRZ"

INSTALL. JUMPER



PENETRATION 1-IC4 BOX B160 1-NRV-152

INSTALL JUMPER

PENTRATION CONDUCTOR NO.	WIRE NO.
1-9	152+
1-10	152-R
1-12	152-G
1-14	152-4
1-15	152-5
1-16	PZAP
1-17	37
1-19	152+

DISCONNECT

R
GN
BK
GY
RYL
GNYL
RGN
RBK

9706 R-1

TO PNL. "PRZ"