PRESSURIZER
VENTING OPERATION

AEP/AMP

REVISION 0
MARCH 1981

PRESSURIZER VENTING OPERATION

A. PURPOSE

The objective of this instruction is to specify the required operator actions and precautions necessary to vent non-condensible gases from the pressurizer vapor space. This instruction may also be used as an alternate method of depressurizing the reactor coolant system which may be required by the actions of another operating instruction.

B. INITIAL CONDITIONS

CAUTION: The pressurizer vent should not be used as the primary means of depressurizing the RCS during an inadequate core cooling event. Refer to Inadequate Core Cooling Guidelines for appropriate operator actions and precautions.

NOTE: This guideline assumes that the reactor containment conditions are near normal and an accurate pressurizer pressure and level indication is available.

CAUTION: Do not open the pressurizer vent while the safety injection system is in operation unless an RCS depressurization is required by an Emergency Operating Instruction.

1. Sampling has indicated the presence of a significant quantity of non-condensible gases in the pressurizer vapor space.

2. Abnormal conditions have been experienced with the pressurizer level and pressure control systems.

3. Pressurizer spray is ineffective in reducing the pressurizer pressure.

4. Plant events have occurred (such as inadvertent gas addition, accumulator tank discharge, core uncovery, etc.) that may result in non-condensible gases being collected in the pressurizer.

5. An RCS depressurization is required by another operating instruction and pressurizer spray is not available and/or the use of the power operated relief valves is not desirable.

6. The reactor vessel head has been vented, if required, prior to venting the pressurizer.

C. IMMEDIATE ACTIONS

None

D. SUBSEQUENT ACTIONS

NOTE: If the pressurizer is being vented because large quantities of non-condensible gases are preventing a depressurization, then the actions of steps marked by an asterisk are not applicable.

1. Terminate any changes to the reactor coolant system that may be in progress and bring the RCS to as close to a steady-state condition as possible.

*2. If not already performed, sample the pressurizer vapor space for the presence of non-condensible gases. If a signficant quantity of non-condensible gases is not found, then return to the appropriate operating instruction.

3. In preparation for venting, isolate the containment purge and exhaust systems and the pressure vacuum relief line and start all available containment air circulation equipment

4. Increase the RCS sub-cooling to (insert plant specific value which is 50°F above the value which is the sum of the errors for the temperature measurement system used, and for the pressure measurement system translated into temperature using the saturation tables) by either initiating an RCS pressurization or by dumping steam from the non-faulted steam generators.

NOTE: If the pressurizer is being vented for the purpose of initiating RHR operation and the RCS temperature is less than 350°F, then additional sub-cooling margin is not required.

5. Perform the actions of Appendix A to determine the maximum allowable time period for venting.

6. If not already performed, manually block the low pressure SI initiation if the permissive is energized.

CAUTION: The venting operation may result in pressure decreasing below the SI setpoint. Action should be taken to manually block the automatic SI signal when the permissive is energized.

*7. Increase charging flow to maximum to limit the depressurization rate during the venting period.

NOTE: Pressurizer level will trend upward during the venting operation.

8. Open the vent isolation valves in one pressurizer vent flowpath.

NOTE: If one or both valves fail to open, close both valves and open the isolation valves in the parallel flow path.

9. Close both vent isolation valves when:

   a) The time period determined in Step 5 is met,
   OR
   *b) Pressurizer pressure decreases by 200 psi,
   OR
   c) Pressurizer level increases above 80% of span,
   OR
   d) Reactor coolant sub-cooling decreases below (insert plant specific valve which is the sum of the errors for the temperature measurement system used, and for the pressure measurement system translated into temperature using the saturation tables).

10. Re-establish normal charging flow and restore the pressurizer water level to the normal operating range.

11. If the venting was terminated prior to removing enough of the non-condensible gases to restore normal pressurizer control or to reduce pressure to the required condition, then return to Step 4.

NOTE: If multiple venting operations are required and the containment hydrogen concentration is equal to or greater than 3 volume percent, the provisions must be made to

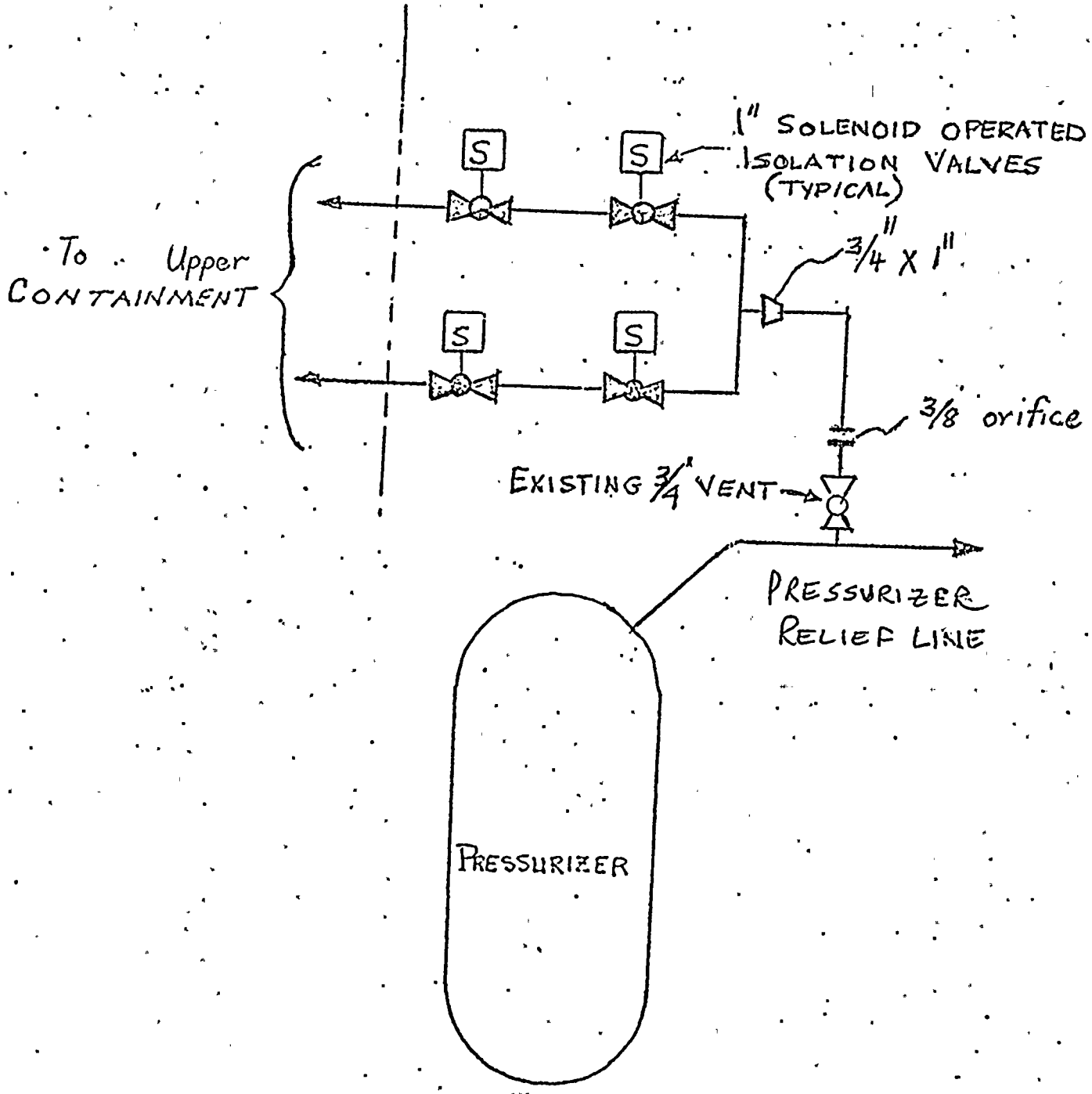
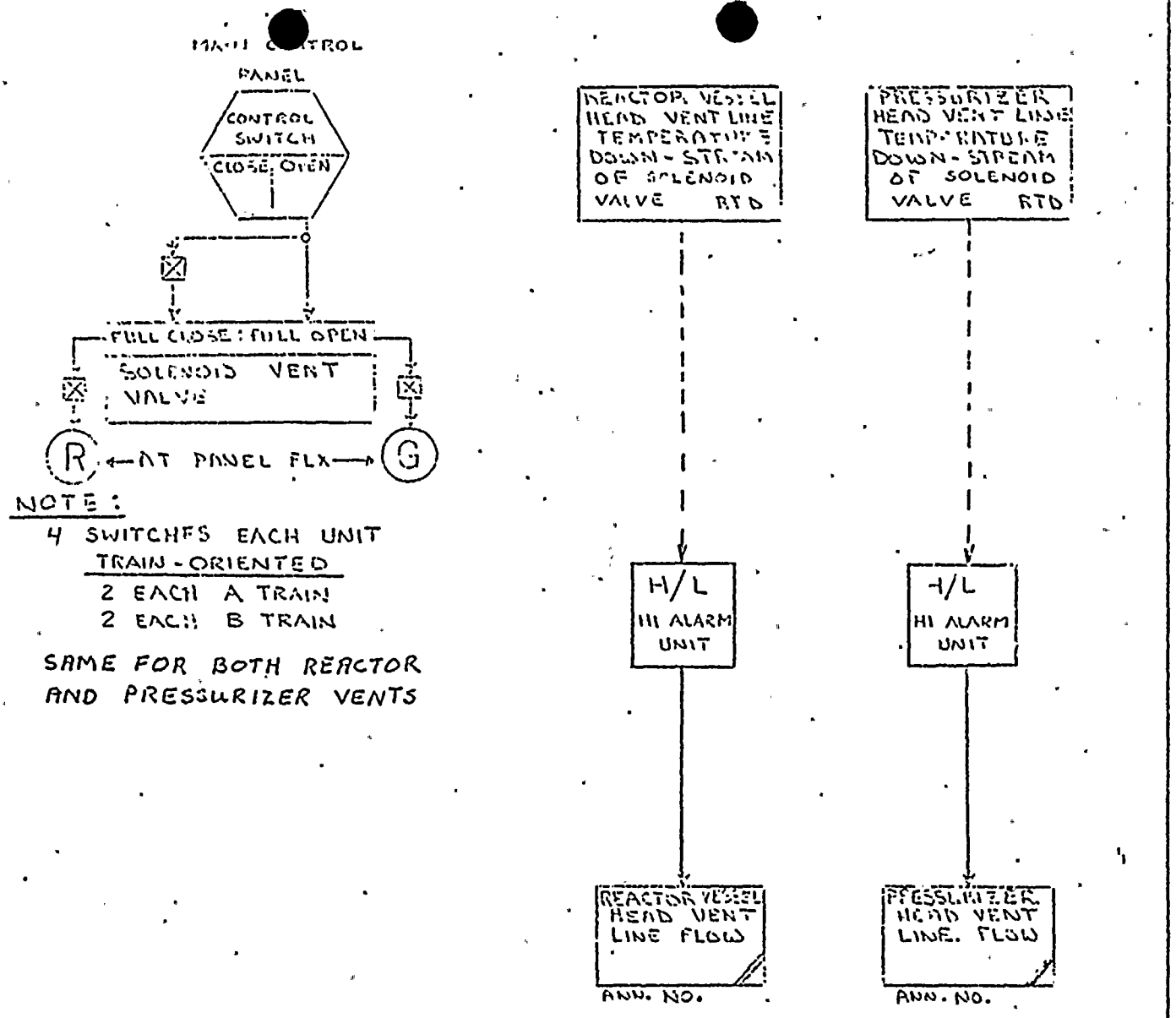


FIGURE 2 Dated 6/30/81

DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2



REACTOR HEAD VENT AND PRESSURIZER HEAD VENT LOGIC DIAGRAM

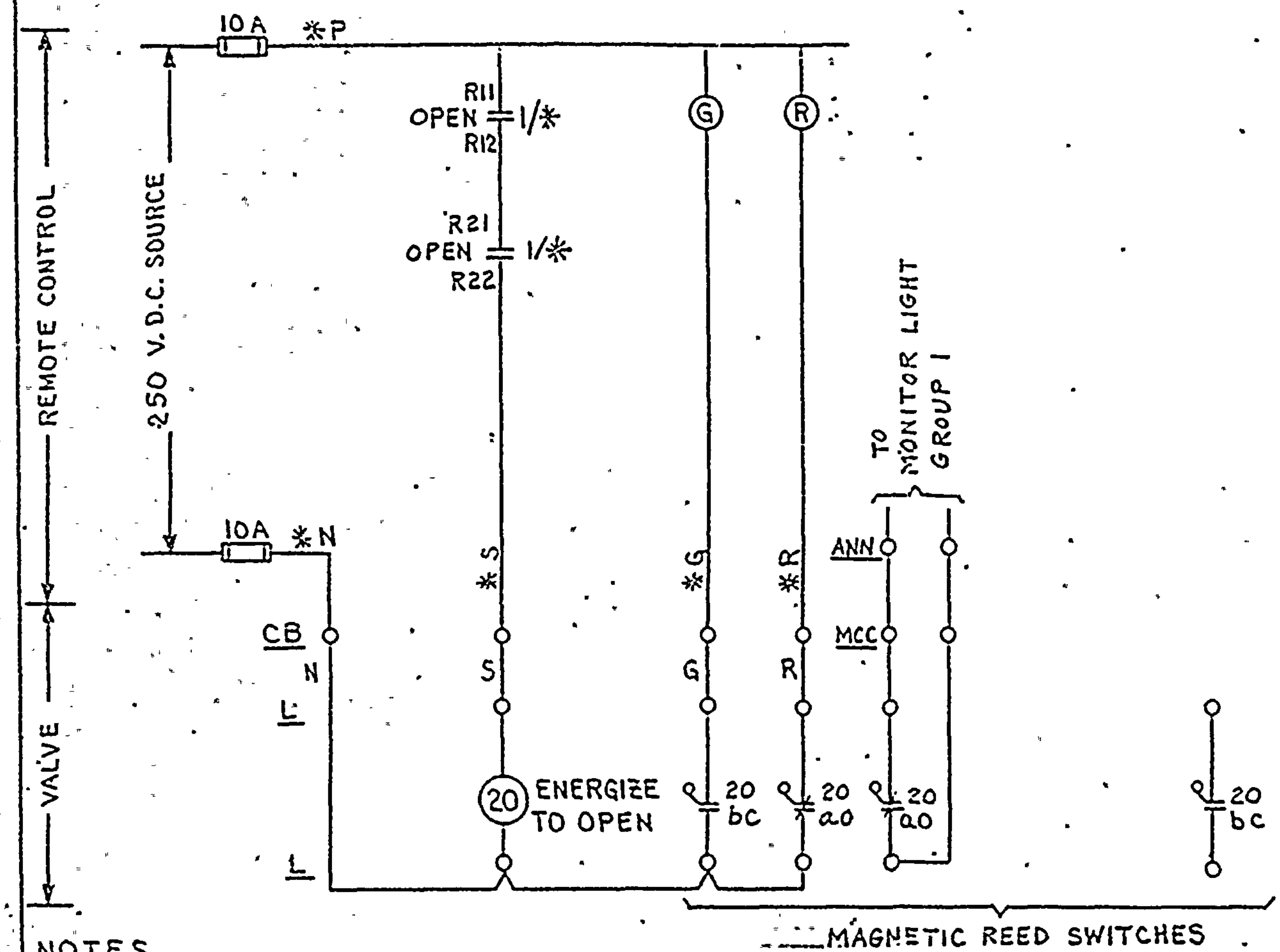
FIG. 3 Dated 6/30/81

VALVE NUMBER	SHT. NO.	FUNCTION	FLOW DIAG.	SYSTEM
9249A	330	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9249B	331	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9249C	332	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9249D	333	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9249E	334	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9249F	335	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9250A	336	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9250B	337	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9250C	338	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9250D	339	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9250E	340	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9250F	341	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9236	342	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9239A, 9239B	343	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
9244	344	DRUMMING CONTROL SYSTEM	110E197, Sh.2	
1-PV-1, 2-PV-1	220	PRESSURIZER VENT ISOLATION	2654C44	
1-PV-2, 2-PV-2	220	PRESSURIZER VENT ISOLATION	2654C44	
1-PV-3, 2-PV-3	221	PRESSURIZER VENT ISOLATION	2654C44	
1-PV-4, 2-PV-4	221	PRESSURIZER VENT ISOLATION	2654C44	
1-HV-1, 2-HV-1	220	HEAD VENT ISOLATION	2654C44	
1-HV-2, 2-HV-2	220	HEAD VENT ISOLATION	2654C44	
1-HV-3, 2-HV-3	221	HEAD VENT ISOLATION	2654C44	
1-HV-4, 2-HV-4	221	HEAD VENT ISOLATION	2654C44	

2 ECN 31604
RMcKELVEY 6-27-80

SUB S.O. AEP/AMP-385

Westinghouse Electric Corporation
TITLE: INDIANA AND MICHIGAN ELECTRIC CO.
DONALD C. COOK UNIT NO 1 & 2
ELEMENTARY WIRING DIAGRAM SOLENOID VALVE TABLES
SHERWOOD 6-23-71
CORL 7-7-72
501B017
SHEET-133

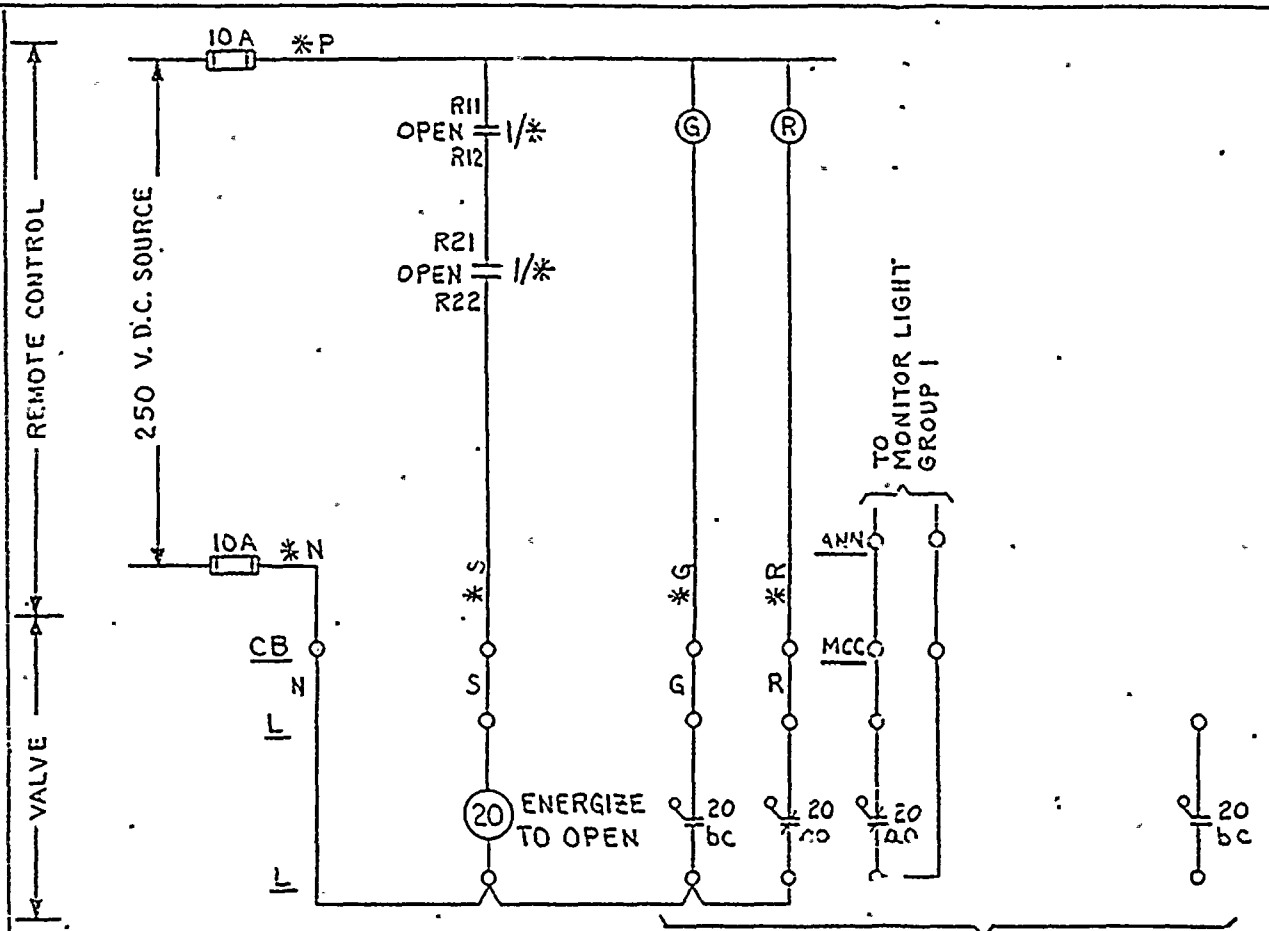


VALVE
1-PV-1
2-PV-1
1-PV-2
2-PV-2
1-HV-1
2-HV-1
1-HV-2
2-HV-2

NOTES
1. * VALVE NO.
2. 1/* SEE SW. DEV. 4 N.P. G SHEET 18
3. CABLE TRAIN "A".

Westinghouse Electric Corporation	
TITLE: INDIANA AND MICHIGAN ELECTRIC CO.	
DONALD C. COOK UNIT NO 1 & 2	
ELEMENTARY WIRING DIAG	SOLENOID VALVE
R.W. KEMERER 7-16-80	501B017
C.D. Ryland 7-16-80	
R.J. Sommerfield 7-17-80	SHEET-220
ATOMIC POWER DIV.	PITTSBURGH, PA., U.S.A.

AEP/AMP-385 S.O. SUB



VALVE
1-PV-3
2-PV-3
1-PV-4
2-PV-4
1-HV-3
2-HV-3
1-HV-4
2-HV-4

NOTES
1. * VALVE NO.
2. 1/* SEE SW. DEV. 4 N.P. 6 SHEET 15
3. CABLE TRAIN "B"

AEP/AMP-385 S.O. SUB

Westinghouse Electric Corporation

TITLE: INDIANA AND MICHIGAN ELECTRIC CO.
DONALD C. COOK UNIT NO 1 & 2
ELEMENTARY WIRING DIAG | SOLENOID VALVE

R.W. KEMERER	7/16/60		
[illegible]	7/18/60		
R.J. Emmerich	7/18/60	P.C. Huckley	7/21/60

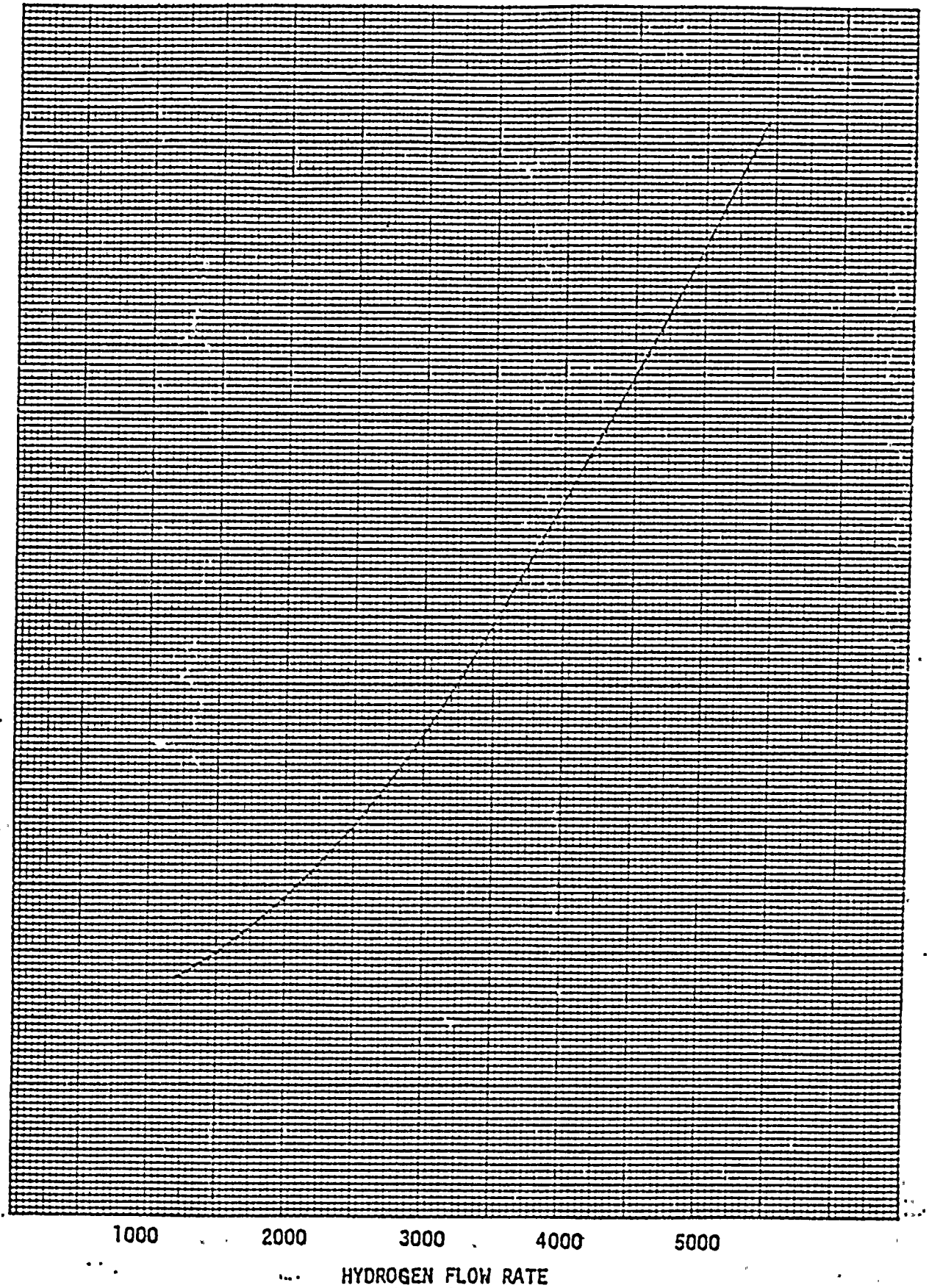
ATOMIC POWER DIV. PITTSBURGH, PA., U.S.A.

5018017
SHEET- 221

4. The maximum allowable venting period is then determined from curve #1 (RCS Pressure vs. Hydrogen Flow Rate). This curve was generated from a calculation which determined the flow rate of hydrogen at various RCS pressures through a 3/8" orificed line. The calculation assumed pure hydrogen which is conservative since the gaseous void in the vessel head will probably be some mixture of gases including steam.

CURVE #1

APPENDIX B



ATTACHMENT 5
TO AEP:NRC:0578