

Docket No. 50-346  
License No. NPF-3  
Serial No. 804  
April 13, 1982  
Attachment 2

Revised by Toledo Edison  
April, 1982

# MASTER

## NUCLEAR ENGINEERING FILE COPY

SUPPLEMENT TO DAVIS-BESSE UNIT 1

SMALL BREAK OPERATING GUIDELINES

Document #69-1106003-00

B&W Document ID No.

77-1130302-00

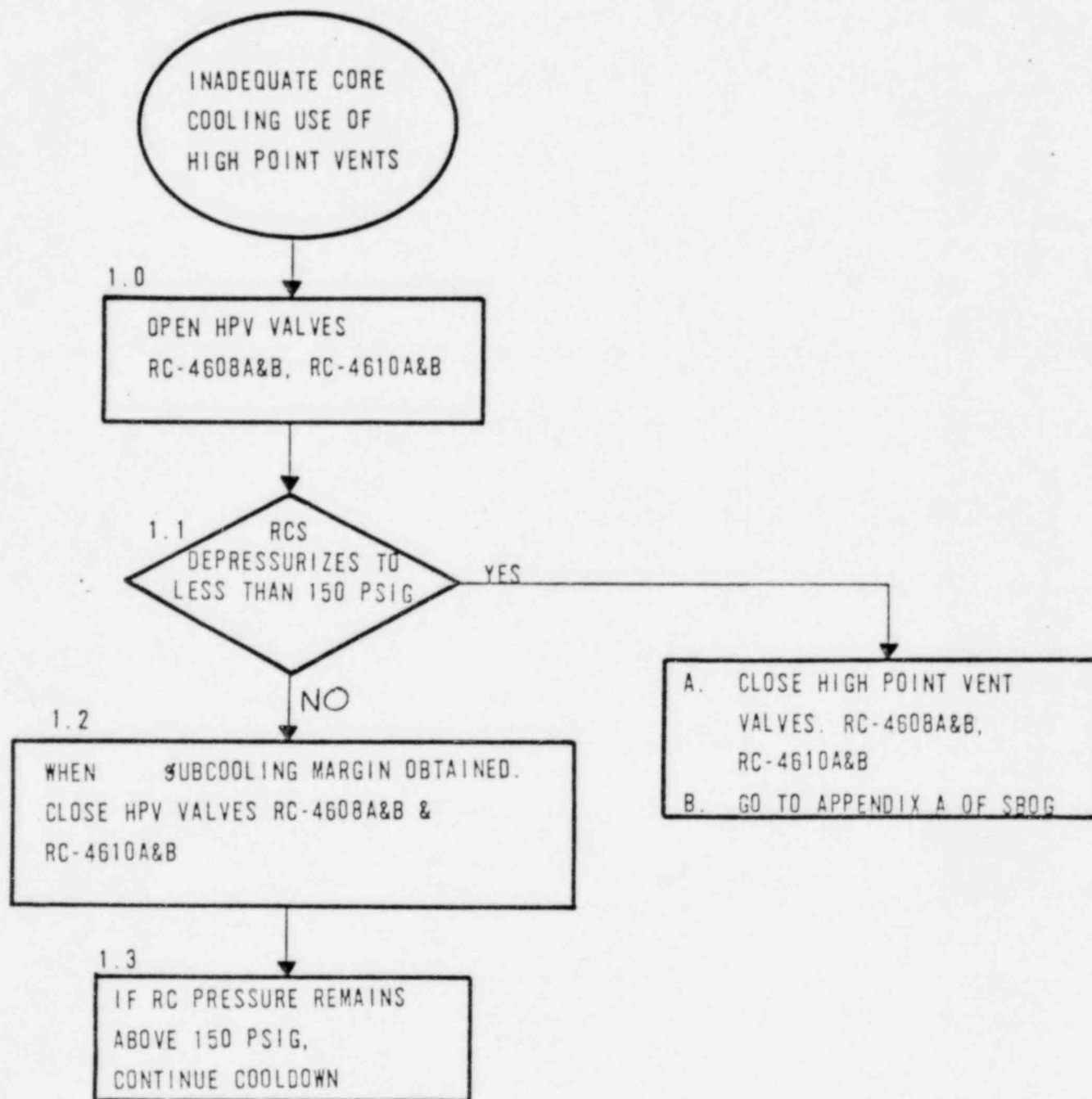
Prepared by  
Babcock & Wilcox Company  
Nuclear Power Generation Division  
Lynchburg, Virginia

Inadequate Core Cooling Use of High Point Vents

- Conditions:
1. Inadequate core cooling is occurring,  
  
AND
  2. Core exit thermocouple temperature is greater than curve 1 of figure 3  
( $T_{clad} \geq 1400^{\circ}\text{F}$ ).

Required Actions for Use of High Point Vents:

- 1.0 Open hot leg high point vent valves, RC-4608A, RC-4608B, RC-4610A, and RC-4610B.
- 1.1 If the RCS depressurizes to less than 150 psig:
  - a. Close high point vent valves, RC-4608A, RC-4608B, RC-4610A, and RC-4610B.
  - b. Go to "Appendix A - LPI Cooling" of the Small Break Operating Guidelines.
- 1.2 When subcooling margin is obtained, close high point vent valves, RC-4608A, RC-4608B, RC-4610A, and RC-4610B.
- 1.3 If RC pressure remains above 150 psig, continue cooldown. Follow Section 2.0 of this supplement if further use of vents is required.



## Post Accident Refill Use of Hot Leg High Point Vents

Conditions: 1. Saturated conditions have occurred in the RCS,

AND

2. HPI is maintaining RC pressure greater than the required pressure for LPI operation,

AND

3. RC pumps are not available,

AND

4. Natural circulation has not been established or has stopped (e.g., RCS refill).

### Required Actions for Use of High Point Vents:

2.0 Open all hot leg high point vent valves, RC-4608A, RC-4608B, RC-4610A and RC-4610B.

2.1 If the RCS depressurizes to less than 150 psig:

- a. Close all hot leg vent valves, RC-4608A, RC-4608B, RC-4610A and RC-4610B.
- b. Go to "Appendix A - LPI Cooling" of the Small Break Operating Guidelines.

2.2 When natural or forced circulation is established as indicated by:

- a.  $T_{hot}$  and core exit thermocouple (average of 5 highest) becoming subcooled by subcooling margin and decreasing.

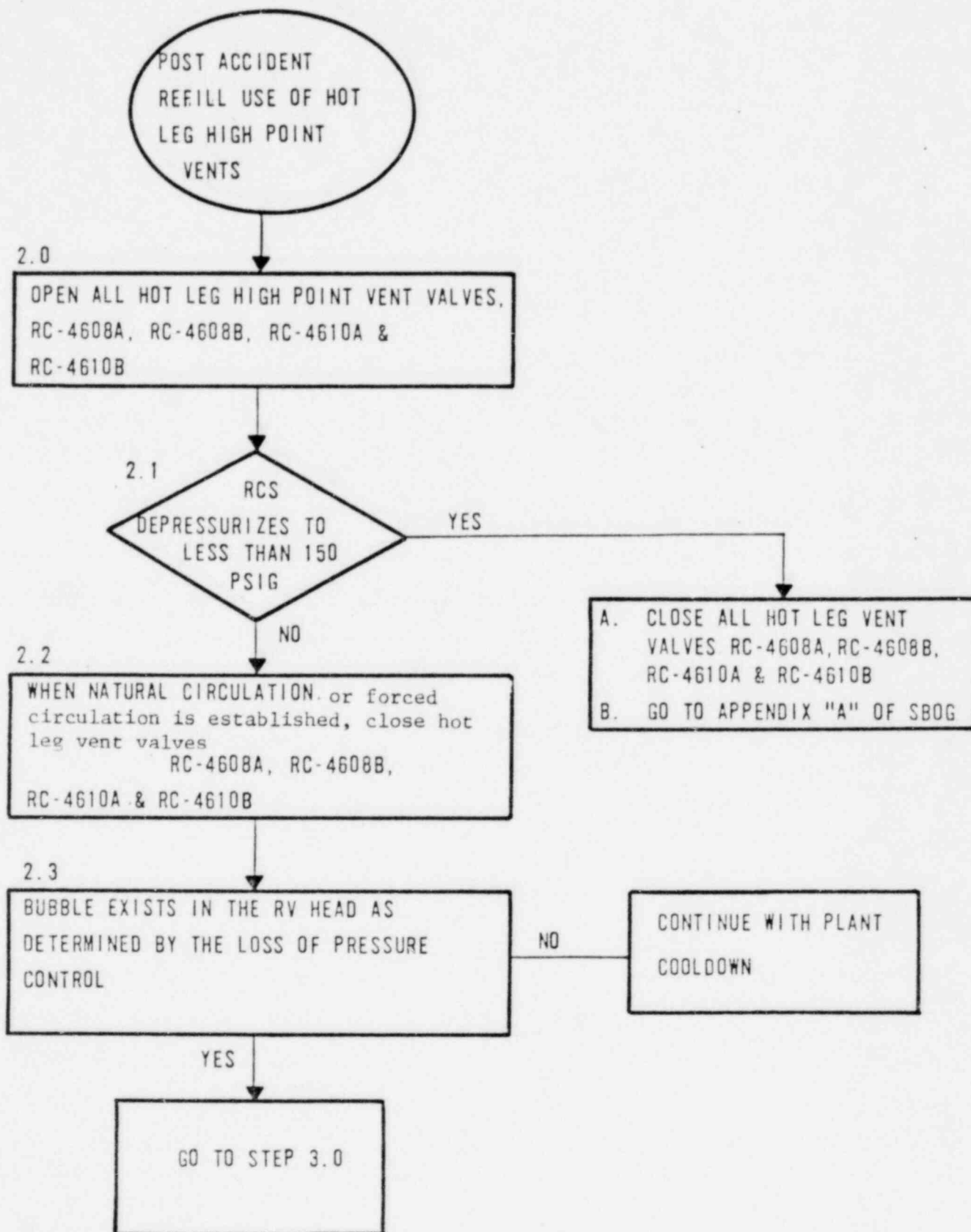
AND

- b. Core exit thermocouples temperature decreases when secondary pressure is decreased.

Close all hot leg high point vent valves, RC-4608A, RC-4608B, RC-4610A and RC-4610B.

NOTE: If natural circulation is not established, the Small Break Operating Guidelines will direct further actions.

2.3 Go to Step 3.0 if forced flow is not established and a bubble has formed in the vessel head as indicated by a loss of pressure control, otherwise continue with plant cooldown.

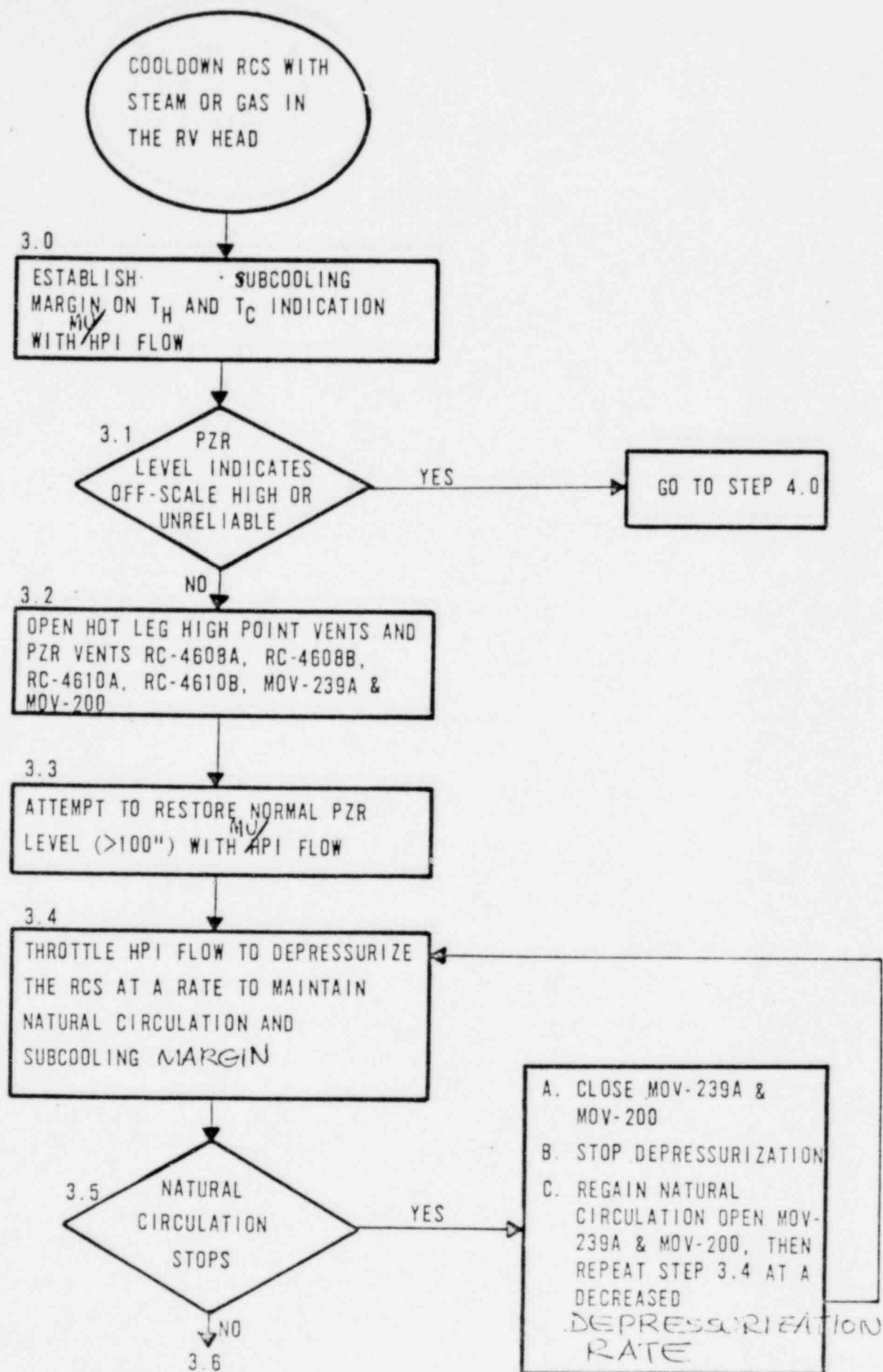


Use of High Point Vents to Cooldown the RCS With Steam or Gas in the Reactor  
Vessel (RV) Head

Conditions: Steam has accumulated in the RV head as indicated by a loss of pressure control (i.e., RC pressure does not decrease significantly despite spraying the pressurizer or opening PORV).

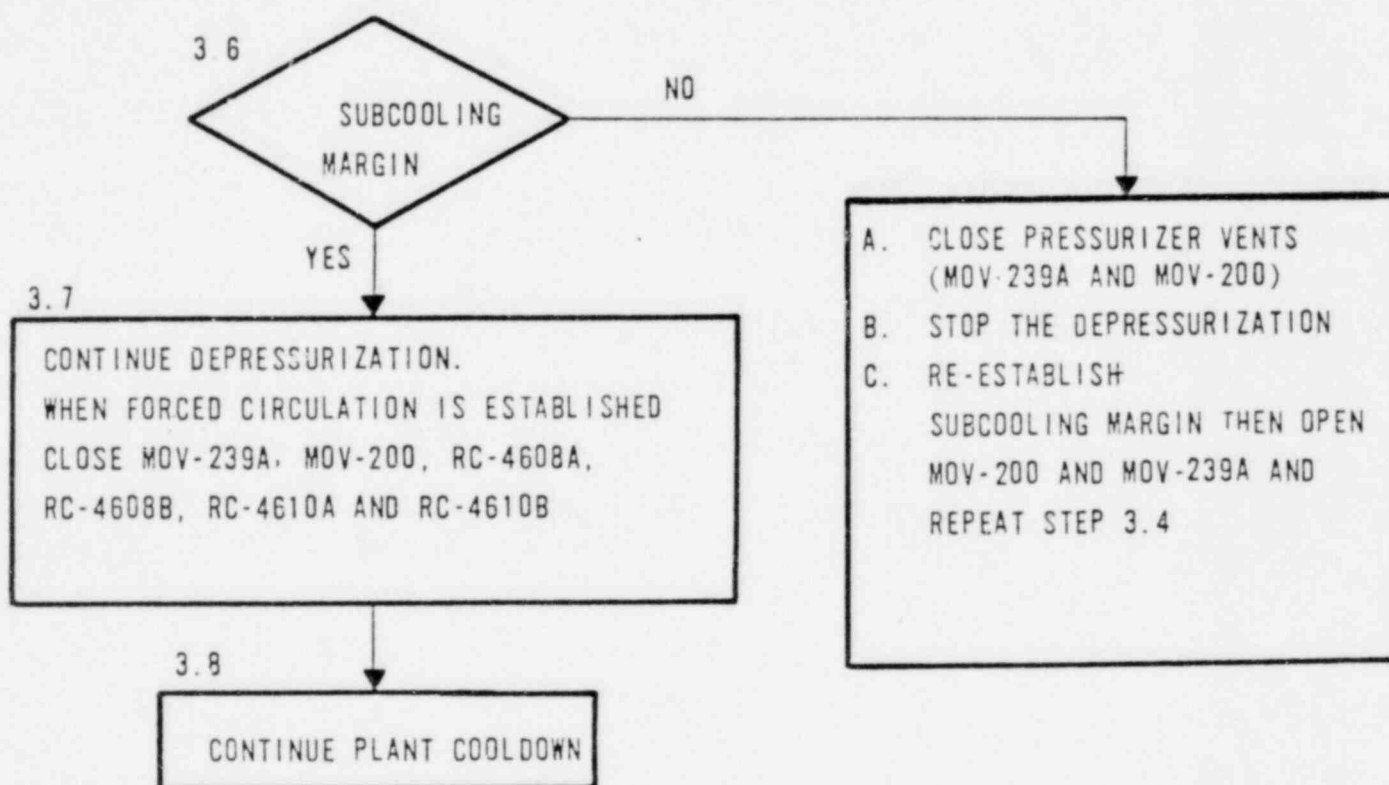
Required Actions to Cooldown:

- 3.0 Establish subcooling margin on  $T_{hot}$  and  $T_{cold}$  indication with MU or HPI flow.
- 3.1 If pressurizer level indicates off-scale high or unreliable, then go to Step 4.0, otherwise continue.  
  
If in any of the following steps, pressurizer level indicates off-scale high or unreliable, go to Step 4.0.
- 3.2 Open hot leg high point vents and pressurizer vents, RC-4608A, RC-4608B, RC-4610A, RC-4610B, MOV-239A and MOV-200.
- 3.3 Attempt to restore normal pressurizer level (>100") with MU or HPI flow.
- 3.4 Throttle HPI flow to depressurize the RCS at a rate to maintain natural circulation flow and subcooling margin.
- 3.5 If natural circulation stops
  - a. Close pressurizer vents (MOV-239A and MOV-200).
  - b. Stop depressurization.
  - c. When natural circulation is regained, open pressurizer vents (MOV-239A, MOV-200), repeat Step 3.4 and depressurize at a slower rate.





- 3.6 If subcooling margin cannot be maintained
- a. Close pressurizer vents (MOV-239A and MOV-200).
  - b. Stop the depressurization.
  - c. When subcooling margin is re-established, open pressurizer vents (MOV-239A, MOV-200), and repeat Step 3.4.
- 3.7 Continue depressurization. When forced circulation is established, using RC pumps or the DHR pumps, close MOV-239A, MOV-200, RC-4608A, RC-4608B, RC-4610A and RC-4610B. The preferable mode of using the DHR pumps is through valves DH11 & DH12. Other alternative is the recirculation from the sump.
- 3.8 Continue with plant cooldown.



Use of High Point Vents to Cooldown the RCS Without Pressurizer Level  
Indication and With Bubble in RV Head

Conditions: 1. RCS pressure stabilized after the loops have been refilled

AND

2. Pressurizer level indication is not reliable

OR

3. Pressurizer level indication is off-scale high.

Required Actions to Cooldown:

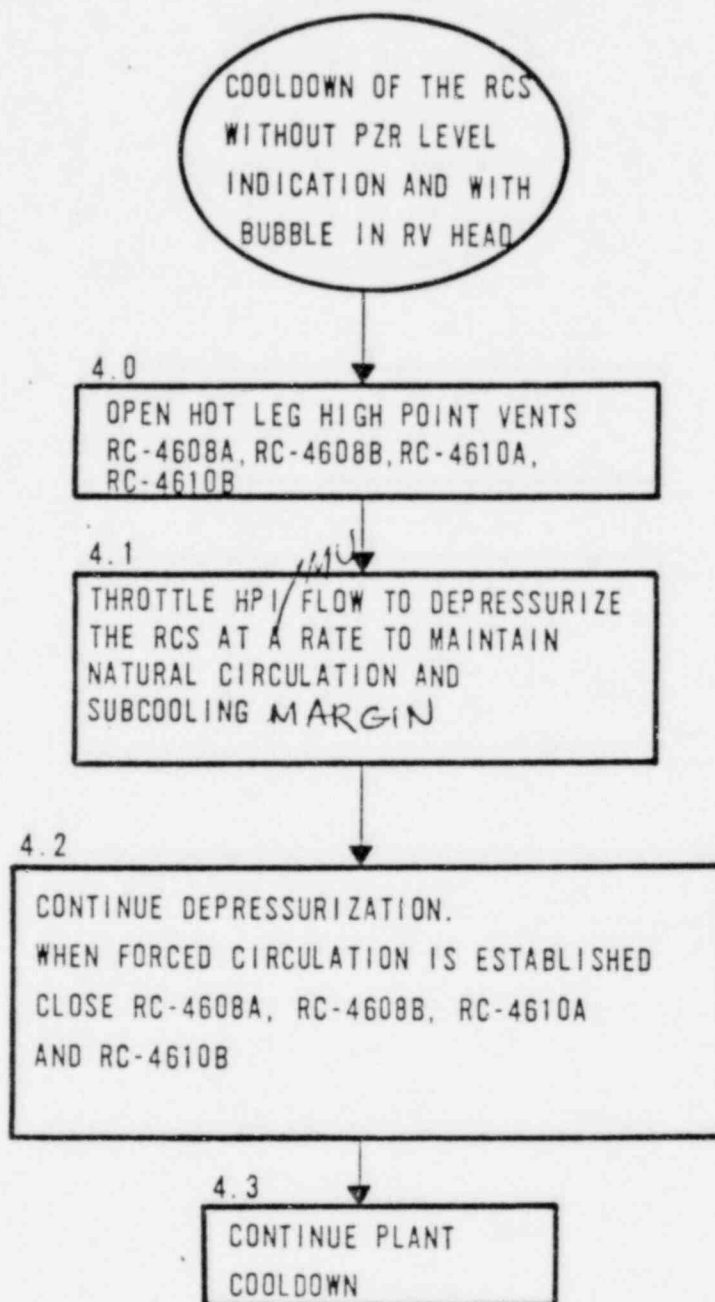
4.0 Open hot leg high point vent valves RC-4608A, RC-4608B, RC-4610A and RC-4610B.

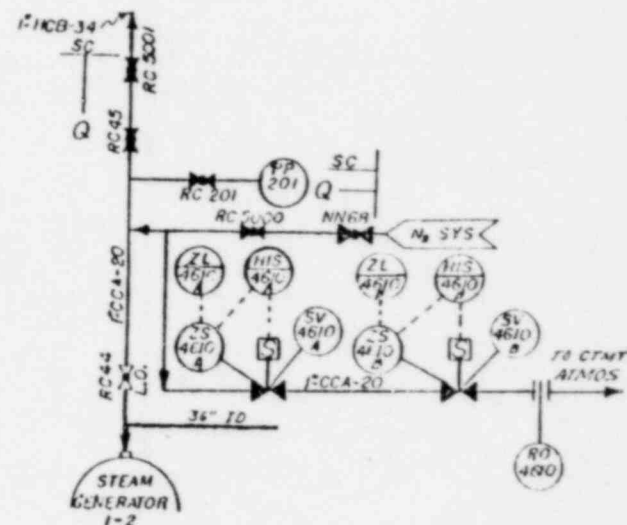
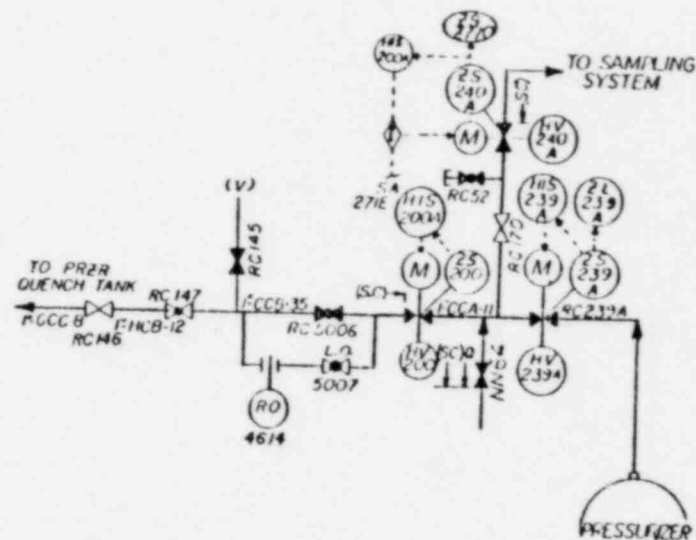
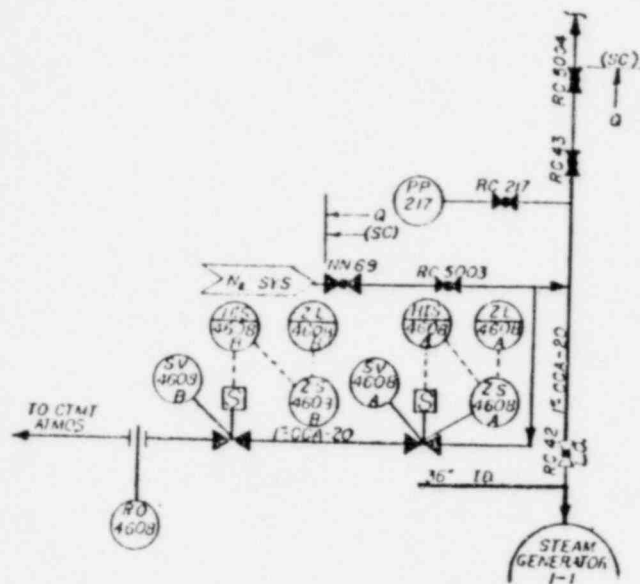
4.1 Throttle HPI/MU flow to depressurize the RCS at a rate to maintain natural circulation flow and subcooling margin.

If at any point natural circulation is lost, open the hot leg high point vents immediately.

4.2 Continue depressurization. When forced circulation is established, using RC pumps or the DHR pumps, close RC-4608A, RC-4608B, RC-4610A and RC-4610B.

4.3 Continue with plant cooldown.





LO - LOCKED OPEN

REACTOR COOLANT SYSTEM HIGH POINT VENTING  
FOR DB-1

Docket No. 50-346  
License No. NPF-3  
Serial No. 804  
April 13, 1982  
Attachment 3

Emergency Procedure EP 1202.06

Loss of Reactor Coolant and Reactor Coolant Pressure