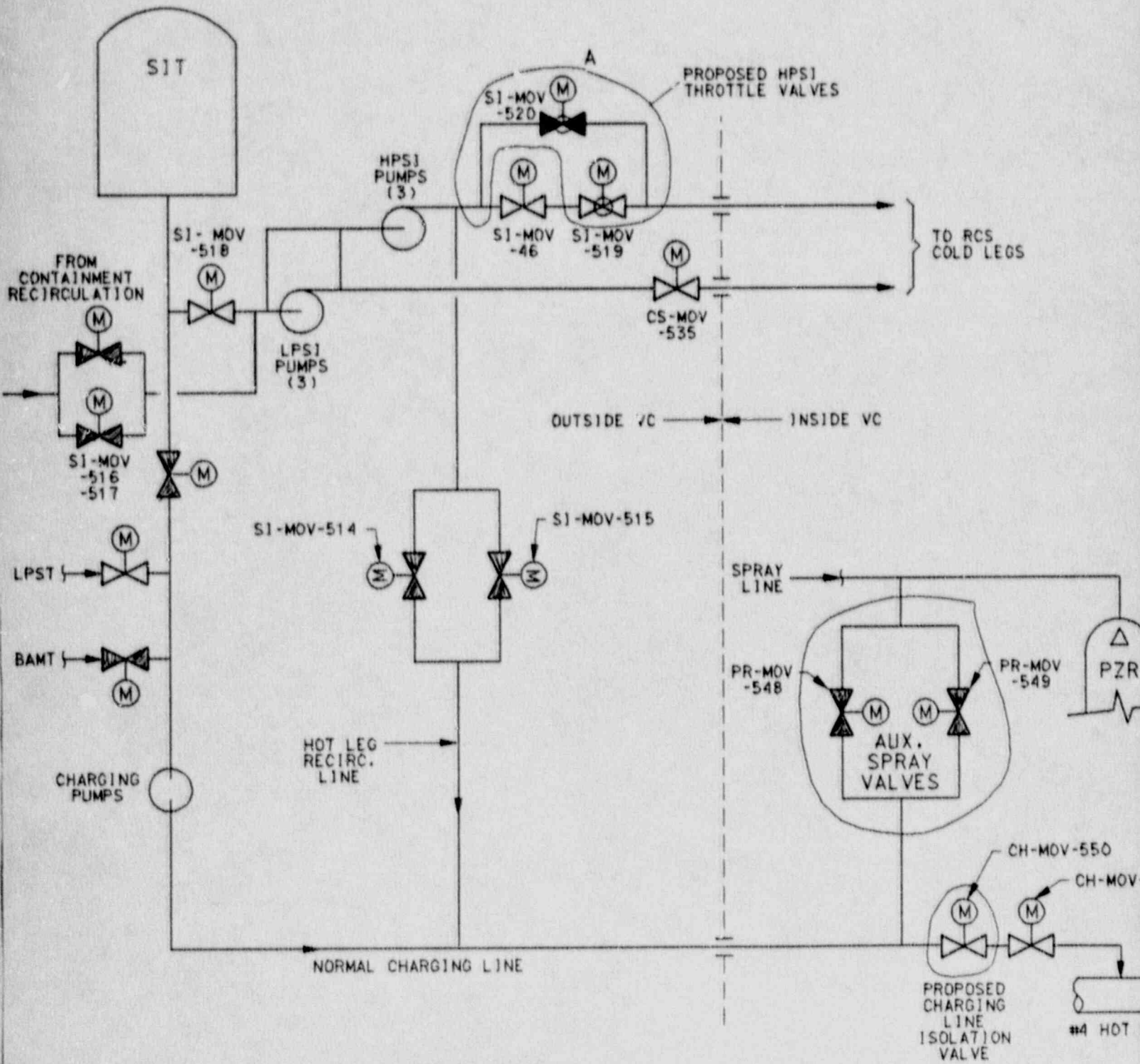


PROPOSED HPSI THROTTLE AND PZR.AUX.SPRAY MODS.



PROPOSED CHANGE 232
SKETCH A

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SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS safety injection subsystem, the recirculation subsystem, and the long-term hot leg injection subsystem shall be demonstrated OPERABLE:

- a. At least once per 31 days on a STAGGERED TEST BASIS by:
 - 1. Verifying that each high pressure safety injection pump:
 - a) Starts (unless already operating) from the control room.
 - b) Develops a discharge pressure of \geq 850 psig on recirculation flow to the safety injection tank.
 - c) Operates for at least 15 minutes.
 - 2. Verifying that each low pressure safety injection pump:
 - a) Starts (unless already operating) from the control room.
 - b) Develops a discharge pressure of \geq 250 psig on recirculation flow through CS-MOV-532.
 - c) Operates for at least 15 minutes.
- b. At least once per 31 days by:
 - 1. Verifying that the following valves are in the indicated positions with power to the valve operators removed by opening at least two breakers in series:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Valve Position</u>
a. CH-MOV-522	a. Charging Header/LPSI Isolation	a. Closed

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SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that the following valves are in their normally closed position with power to the valve operator removed by disconnecting the power cables as they leave the motor starter:

<u>Valve Number</u>	<u>Valve Function</u>
b. CS-MOV-534	LPSI Pump Header Isolation Valve Bypass

4. Verifying that the following valves are in their normal position with power to the valve operator motors separated by dual contactors from the motor control center:

<u>Valve Number</u>	<u>Valve Function</u>	<u>Normal Position</u>
a. CS-MOV-532	LPSI Recirculation Line	Closed
b. CS-MOV-533	LPSI Pump Header Isolation	Open
c. CS-MOV-535	LPSI Pump Header Isolation	Open
d. SI-MOV-518	HPSI and LPSI Pump Header Suction Isolation	Open
e. SI-MOV-48	HPSI and LPSI Minimum Recirculation Line	Open
f. SI-MOV-49	HPSI and LPSI Minimum Recirculation Line	Open
g. SI-MOV-515	Hot Leg Injection Isolation	Closed
h. SI-MOV-514	Hot Leg Injection Isolation	Closed
i. SI-MOV-516	V.C. Sump Isolation	Closed
j. SI-MOV-517	V.C. Sump Isolation	Closed
k. SI-MOV-46	HPSI Isolation	Open
l. SI-MOV-4	LPSI Pump Crossover to HPSI Pump	Open
m. CS-MOV-536	SI Header Isolation to Cold Leg	Open
n. CS-MOV-537	SI Header Isolation to Cold Leg	Open
o. CS-MOV-538	SI Header Isolation to Cold Leg	Open
p. CS-MOV-539	SI Header Isolation to Cold Leg	Open
q. MC-MOV-301	MCS Loop Isolation	Open
r. MC-MOV-302*	MCS Loop Isolation	Open
s. MC-MOV-309	MCS Loop Isolation	Open
t. MC-MOV-310*	MCS Loop Isolation	Open
u. MC-MOV-318*	MCS Loop Isolation	Open
v. MC-MOV-319	MCS Loop Isolation	Open
w. MC-MOV-325	MCS Loop Isolation	Open
x. MC-MOV-326*	MCS Loop Isolation	Open

In Modes 2, 3, 4*, 5*, MCS loop isolation valves are required to be closed for main coolant pump(s) starting. After the pump(s) have been started, the valve(s) shall be reopened.

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SURVEILLANCE REQUIREMENTS (Continued)

y.	SI-MOV-519	HPSI Flow Control	Open
z.	SI-MOV-520	HPSI Flow Control	Closed
aa.	CH-MOV-524	Charging Line Isolation	Open
bb.	CH-MOV-550	Charging Line Isolation	Open

Note: CS-MOV-532 may be opened for <120 minutes per week for safety injection tank mixing or low pressure safety injection pump testing.

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SURVEILLANCE REQUIREMENTS (Continued)

5. Verifying that each ECCS safety injection subsystem is aligned to receive electrical power from an OPERABLE emergency bus.
 6. Verifying that each pair of ECCS recirculation subsystem redundant valves is aligned to receive electrical power from separate OPERABLE buses.
 7. Verifying that each pair of ECCS long-term hot leg injection subsystem redundant valves is aligned to receive electrical power from separate OPERABLE buses.
 8. Verifying that the charging header flow metering instrument is OPERABLE by observing charging flow rate at least once per 12 hours.
 9. Verifying that the redundant HPSI header isolation/flow control valves are aligned to receive electrical power from separate OPERABLE buses.
 10. Verifying that the redundant charging line isolation valves are aligned to receive power from separate OPERABLE buses.
 11. Verifying that redundant pressurizer auxiliary spray flow control valves are aligned to receive power from separate OPERABLE buses.
- c. By a visual inspection which verifies that no loose debris (rags, trash, clothing, etc.) is present in the containment which could be transported to the containment sump and cause restriction of the pump suction during LOCA conditions. This visual inspection shall be performed:
1. For all accessible areas of the containment prior to establishing containment integrity, and
 2. Of the areas affected within containment at the completion of each containment entry when containment integrity is established.
- d. At least once per 18 months by visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or corrosion.
- e. At least once per 18 months, during shutdown, by:
1. Cycling each power-operated valve in the flow path through at least one complete cycle of full travel.
 2. Verifying that valve CS-MOV-532 actuates to its correct position on a safety injection signal.

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

3. Verifying that each of the following pumps start automatically upon receipt of a safety injection signal:
 - (a) High Pressure Safety Injection (HPSI) pump
 - (b) Low Pressure Safety Injection (LPSI) pump

EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4. Verifying the proper positioning of hot leg injection throttle valve SI-V-645.
 5. Verifying that each charging pump steps automatically upon receipt of a safety injection signal.
 6. Verifying that the charging head flow metering instrument is OPERABLE by performing a CHANNEL CALIBRATION.
 7. Verifying the proper positioning of the HPSI throttle valves SI-V-671, 672, 673, and 674 by performing an inspection to ensure that:
 - (a) Each valve locking device is in place and securely welded to the valve handle and to the valve yoke.
 - (b) The scribe mark on each valve body aligns with the scribe mark on the valve yoke.
- f. During shutdown following completion of the modifications to the ECCS subsystems that alter the subsystem flow characteristics and/or any time either test under 4.5.2.e.7 is failed, by developing a backpressure of 875 psig in the high pressure safety injection header with two HPSI pumps operating as follows:
1. Pressure to the suction of the HPSI pumps to be 170 ± 10 psi.
 2. LPSI flow is isolated.
 3. Injection flow is to one loop with the other loops isolated by closing the appropriate injection gate valves CS-MOV-536, CS-MOV-537, CS-MOV-538, and CS-MOV-539.
 4. The flow to the injection loops shall not be less than 200 gpm.
 5. The above test shall be repeated to include the operation of all HPSI pumps.
- g. During shutdown following completion of modifications to the ECCS subsystems that alter the subsystem flow characteristics as follows:
1. For the Low Pressure Safety Injection (LPSI) pumps, verify that all combinations of two pumps develop a combined flow ≥ 2180 gpm.
 2. For the hot leg injection line, verify the proper positioning of throttle valve SI-V-645 by flow testing.
 3. For the pressurizer auxiliary spray line verify system performance by flow testing.