

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	<p>D.3 Initiate action to restore one standby gas treatment (SBGT) subsystem to OPERABLE status.</p> <p><u>AND</u></p> <p>D.4 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.</p>	<p>1 hour</p> <p>1 hour</p>
E. SDM not within limits in MODE 5.	<p>E.1 Suspend CORE ALTERATIONS except for control rod insertion and fuel assembly removal.</p> <p><u>AND</u></p> <p>E.2 Initiate action to fully insert all insertable control rods in core cells containing one or more fuel assemblies.</p> <p><u>AND</u></p> <p>E.3 Initiate action to restore secondary containment to OPERABLE status.</p> <p><u>AND</u></p> <p>E.4 Initiate action to restore one SBGT subsystem to OPERABLE status.</p> <p><u>AND</u></p> <p>E.5 Initiate action to restore isolation capability in each required secondary containment penetration flow path not isolated.</p>	<p>Immediately</p> <p>Immediately</p> <p>1 hour</p> <p>1 hour</p> <p>1 hour</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.1.1 Verify SDM is:</p> <p> a. $\geq 0.38\% \Delta k/k$ with the highest worth control rod analytically determined; or</p> <p> b. $\geq 0.28\% \Delta k/k$ with the highest worth control rod determined by test.</p>	<p>Prior to each in vessel fuel movement during fuel loading sequence</p> <p><u>AND</u></p> <p>Once within 4 hours after criticality following fuel movement within the reactor pressure vessel or control rod replacement</p>

3.1 REACTIVITY CONTROL SYSTEMS

3.1.2 Reactivity Anomalies

- LCO 3.1.2 The core reactivity difference shall be within $\pm 1\% \Delta k/k$:
- a. between the monitored rod density and the predicted rod density (GE method), or
 - b. between the actual core K_{eff} and the predicted core K_{eff} (FANP method)

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Core reactivity difference not within limit.	A.1 Restore core reactivity difference to within limit.	72 hours
B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.2.1 Verify core reactivity difference is within $\pm 1\% \Delta k/k$: <ol style="list-style-type: none"> a. between the monitored rod density and the predicted rod density.(GE method), or b. between the actual core K_{eff} and the predicted core K_{eff} (FANP method). 	Once within 24 hours after reaching equilibrium conditions following startup after fuel movement within the reactor pressure vessel or control rod replacement <u>AND</u> 1000 MWD/T thereafter during operations in MODE 1

3.1 REACTIVITY CONTROL SYSTEMS

3.1.3 Control Rod OPERABILITY

LCO 3.1.3 Each control rod shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each control rod.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One withdrawn control rod stuck.	-----NOTE----- Rod worth minimizer (RWM) may be by passed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation", if required, to allow continued operation. -----	
	A.1 Disarm the associated control rod drive (CRD) hydraulically. <u>AND</u>	2 hours
	A.2 -----NOTE----- Not applicable when less than or equal to the low power setpoint (LPSP) of the RWM. ----- Perform SR 3.1.3.2 and SR 3.1.3.3 for each withdrawn OPERABLE control rod. <u>AND</u>	24 hours
	A.3 Perform SR 3.1.1.1.	72 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Two or more withdrawn control rods stuck.	B.1 Disarm the associated CRD hydraulically.	2 hours
	<u>AND</u>	
	B.2 Be in MODE 3.	12 hours
C. One or more control rods inoperable for reasons other than Condition A or B.	C.1 -----NOTE----- RWM may be bypassed as allowed by LCO 3.3.2.1, if required, to allow insertion of inoperable control rod and continued operation. ----- Fully insert inoperable control rod.	3 hours
	<u>AND</u>	
	C.2 Disarm the associated CRD hydraulically or electrically.	4 hours
D. -----NOTE----- Not applicable when THERMAL POWER > 10% RTP. ----- Two or more inoperable control rods not in compliance with banked position withdrawal sequence (BPWS) and not separated by two or more OPERABLE control rods.	D.1 Restore compliance with BPWS.	4 hours
	<u>OR</u>	
	D.2 Restore control rod to OPERABLE status.	4 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>E. -----NOTE----- Not applicable when THERMAL POWER > 10% RTP. ----- One or more groups with four or more inoperable control rods.</p>	<p>E.1 Restore control rod to OPERABLE status.</p>	<p>4 hours</p>
<p>F. Required Action and associated Completion Time of Condition A, C, D, or E not met. <u>OR</u> Nine or more control rods inoperable.</p>	<p>F.1 Be in MODE 3.</p>	<p>12 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.1.3.1 Determine the position of each control rod.</p>	<p>24 hours</p>
<p>SR 3.1.3.2 -----NOTE----- Not required to be performed until 7 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of RWM. ----- Insert each fully withdrawn control rod at least one notch.</p>	<p>7 days</p>

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.1.3.3 -----NOTE----- Not required to be performed until 31 days after the control rod is withdrawn and THERMAL POWER is greater than the LPSP of the RWM. ----- Insert each partially withdrawn control rod at least one notch.</p>	<p>31 days</p>
<p>SR 3.1.3.4 Verify each control rod scram time from fully withdrawn to notch position 06 is ≤ 7 seconds.</p>	<p>In accordance with SR 3.1.4.1, SR 3.1.4.2, SR 3.1.4.3, and SR 3.1.4.4</p>
<p>SR 3.1.3.5 Verify each control rod does not go to the withdrawn overtravel position.</p>	<p>Each time the control rod is withdrawn to “full out” position</p> <p><u>AND</u></p> <p>Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect coupling</p>

3.1 REACTIVITY CONTROL SYSTEMS

3.1.4 Control Rod Scram Times

- LCO 3.1.4 a. No more than 7 OPERABLE control rods shall be “slow” in accordance with Table 3.1.4-1; and
- b. No more than 2 OPERABLE control rods that are “slow” shall occupy adjacent locations.

APPLICABILITY: MODES 1 and 2.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Be in MODE 3.	12 hours

SURVEILLANCE REQUIREMENTS

-----NOTE-----

During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE	FREQUENCY
SR 3.1.4.1 Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure $\geq 66.8 \text{ kg/cm}^2$ (950psig)	Prior to exceeding 40% RTP after fuel movement within the reactor pressure vessel <u>AND</u> Prior to exceeding 40% RTP after each reactor shutdown \geq 120 days

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 66.8 kg/cm ² (950 psig)	120 days cumulative operation in MODE 1
SR 3.1.4.3	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with any reactor steam dome pressure.	Prior to declaring control rod OPERABLE after work on control rod or CRD System that could affect scram time
SR 3.1.4.4	Verify each affected control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 66.8 kg/cm ² (950 psig)	Prior to exceeding 40% RTP after work on control rod or CRD System that could affect scram time

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered “slow”.
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, “Control Rod OPERABILITY”, for control rods with scram times > 7 seconds to notch position 06. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered “slow”.
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NOTCH POSITION	% inserted from fully withdrawn	SCRAM TIMES ^{(a)(b)} (seconds)
		when REACTOR STEAM DOME PRESSURE \geq 66.8 kg/cm ² (950 psig)
46	4.5	0.358
36	25.4	1.096
26	46.2	1.860
06	87.9	3.414

(a) Maximum scram time from fully withdrawn position, based on de-energization of scram pilot valve solenoids at time zero.

(b) Scram times as a function of reactor steam dome pressure, when < 66.8 kg/cm² (950 psig) are within established limits.

3.1 REACTIVITY CONTROL SYSTEMS

3.1.5 Control Rod Scram Accumulators

LCO 3.1.5 Each control rod scram accumulator shall be OPERABLE.

APPLICABILITY: MODES 1 and 2.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each control rod scram accumulator.

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One control rod scram accumulator inoperable with reactor steam dome pressure ≥ 63.3 kg/cm² (900 psig)</p>	<p>A.1 -----NOTE----- Only applicable if the associated control rod scram time was within the limits of Table 3.1.4-1 during the last scram time Surveillance. ----- Declare the associated control rod scram time “slow”. <u>OR</u> A.2 Declare the associated control rod inoperable.</p>	<p>8 hours 8 hours</p>
<p>B. Two or more control rod scram accumulators inoperable with reactor steam dome pressure ≥ 63.3 kg/cm² (900 psig)</p>	<p>B.1 Restore charging water header pressure to ≥ 70.3 kg/cm² (1000 psig) <u>AND</u></p>	<p>20 minutes from discovery of Condition B concurrent with charging water header pressure < 70.3 kg/cm² (1000psig)</p>

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SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.5.1 Verify each control rod scram accumulator pressure is $\geq 70.3 \text{ kg/cm}^2$ (1000 psig)	7 days

3.1 REACTIVITY CONTROL SYSTEMS

3.1.6 Rod Pattern Control

LCO 3.1.6 OPERABLE control rods shall comply with the requirements of the banked position withdrawal sequence (BPWS).

APPLICABILITY: MODES 1 and 2 with THERMAL POWER \leq 10% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. One or more OPERABLE control rods less than or equal to eight not in compliance with BPWS.</p>	<p>A.1 -----NOTE----- Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation". ----- Move associated control rod(s) to correct position.</p>	8 hours
	<p><u>OR</u></p> <p>A.2 Declare associated control rod(s) inoperable.</p>	8 hours
<p>B. Nine or more OPERABLE control rods not in compliance with BPWS.</p>	<p>B.1 -----NOTE----- Rod worth minimizer (RWM) may be bypassed as allowed by LCO 3.3.2.1, "Control Rod Block Instrumentation". ----- Suspend withdrawal of control rods.</p>	Immediately
	<p><u>AND</u></p> <p>B.2 Place the reactor mode switch in the shutdown position.</p>	1 hour

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.6.1 Verify all OPERABLE control rods comply with BPWS.	24 hours

3.1 REACTIVITY CONTROL SYSTEMS

3.1.7 Standby Liquid Control (SBLC) System

LCO 3.1.7 Two SBLC subsystems shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 5.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Sodium pentaborate solution not within limits but > 12%	A.1 Restore sodium pentaborate solution to within limits.	72 hours <u>AND</u> 10 days from discovery of failure to meet the LCO
B. One SBLC subsystem inoperable for reasons other than Condition A.	B.1 Restore SBLC subsystem to OPERABLE status.	7 days <u>AND</u> 10 days from discovery of failure to meet the LCO
C. Two SBLC subsystems inoperable for reasons other than Condition A.	C.1 Restore one SBLC subsystem to OPERABLE status.	8 hours
D. Required Action and associated Completion Time not met in MODE 1,2.	D.1 Be in MODE 3.	12 hours
E. Required Action and associated Completion Time not met in MODE 5.	E.1 Verify control rods are all fully inserted.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.1.7.1	Verify available volume of sodium pentaborate solution is within the limits of Figure 3.1.7-1.	24 hours
SR 3.1.7.2	Verify temperature of sodium pentaborate solution is $\geq 20^{\circ}\text{C}$ (68°F)	24 hours
SR 3.1.7.3	Verify temperature of pump suction piping is $\geq 20^{\circ}\text{C}$ (68°F)	24 hours
SR 3.1.7.4	Verify continuity of explosive charge.	31 days
SR 3.1.7.5	Verify the sodium pentaborate solution is within the limits of Figure 3.1.7-1	31 days <u>AND</u> Once within 24 hours after water or boron is added to solution <u>AND</u> Once within 24 hours after solution temperature is restored within the limits
SR 3.1.7.6	Verify each SBLC subsystem manual valve in the flow path that is not locked, sealed, or otherwise secured in position is in the correct position, or can be aligned to the correct position.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.1.7.7	Verify each pump develops a flow rate ≥ 2.6 lps (41.2 gpm) at a discharge pressure ≥ 83.7 kg/cm ² (1190 psig).	In accordance with the Inservice Testing Program or 92 days
SR 3.1.7.8	Verify flow through one SBLC subsystem from pump into reactor pressure vessel.	18 months on a STAGGERED TEST BASIS
SR 3.1.7.9	Verify all heat traced piping between storage tank and pump suction is unblocked.	18 months <u>AND</u> Once within 24 hours after solution temperature is restored within the limits
SR 3.1.7.10	Verify sodium pentaborate enrichment is ≥ 47.25 atom percent B-10.	Prior to addition to SBLC tank

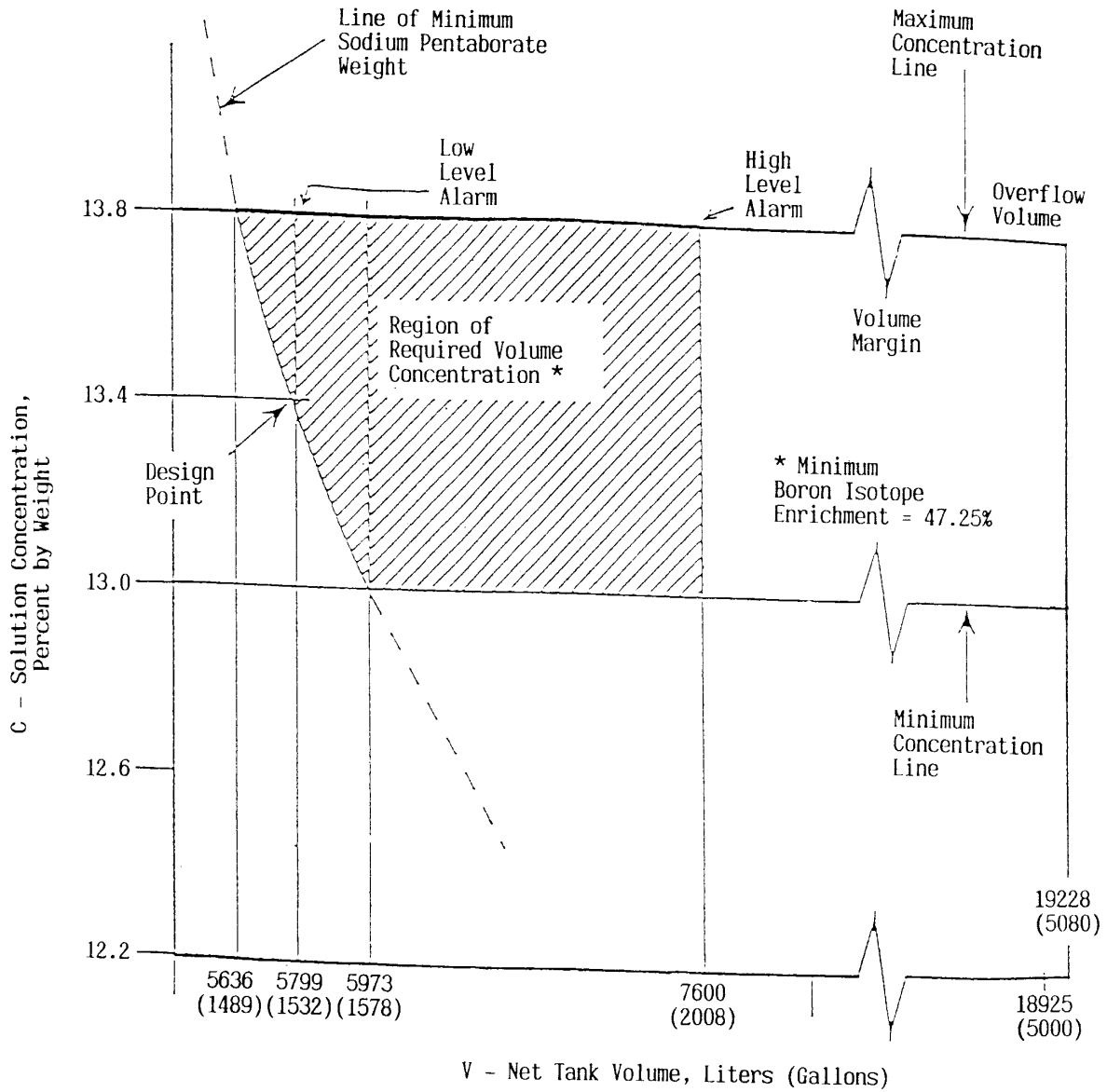


Figure 3.1.7-1 (page 1 of 1)
Sodium Pentaborate Solution Volume Versus Concentration Requirements

3.1 REACTIVITY CONTROL SYSTEMS

3.1.8 Scram Discharge Volume (SDV) Vent and Drain Valves

LCO 3.1.8 Each SDV vent and drain valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 5.

ACTIONS

-----NOTE-----
Separate Condition entry is allowed for each SDV vent and drain line.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. SDV vent or drain line with one valve inoperable	A.1 Restore valve to OPERABLE status.	7 days
B. SDV vent or drain line with both valves inoperable	B.1 -----NOTE----- An isolated line may be unisolated under administrative control to allow draining and venting of the SDV. ----- Isolate the associated line.	8 hours
C. Required Action and associated Completion Time not met in MODE 1 and 2.	C.1 Be in MODE 3.	12 hours
D. Required Action and associated Completion Time not met in MODE 5.	D.1 Verify control rods are all fully inserted.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.1.8.1 -----NOTE----- Not required to be met on vent and drain valves closed during performance of SR 3.1.8.2. ----- Verify each SDV vent and drain valve is open.	31 days
SR 3.1.8.2 Cycle each SDV vent and drain valve to the fully closed and fully open position.	92 days
SR 3.1.8.3 Verify each SDV vent and drain valve: <ul style="list-style-type: none"> a. Closes in ≤ 30 seconds after receipt of an actual or simulated scram signal; and b. Opens when the actual or simulated scram signal is reset. 	18 months