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VP0540	06		10	1	0	0

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A045 01

RUNBACK VERIFICATION PROCEDURE

1.0 ENTRY CONDITIONS

IF any of the following conditions exist:

- o ICS automatic runback is in progress
- o An operator controlled manual runback is in progress
- o Use of VP-540 is directed by another procedure,

THEN use this procedure.

2.0 IMMEDIATE ACTIONS

Note

There are no immediate actions for this procedure.

3.0 FOLLOW-UP ACTIONS

VERIFICATION	DETAILS
NOTE During the runback, some parameters are constantly changing and cannot be verified until the new power level is reached and the unit has stabilized. This procedure is written assuming that performance of this procedure is begun while the runback is in progress. If it is not, then later steps may be more important than those that are listed first, and may be performed out of order.	
3.1 Verify Rx power is < limit for plant conditions.	Selected limiting parameters: o IF an asymmetric rod exists, THEN verify ≤ 60% FP for the RCP combination o IF 1 MFWP or 1 MFWBP has tripped, THEN verify ≤ 55% FP o IF only 3 RCPs are operating, THEN verify ≤ 75% FP o IF 1 MSIV has closed, THEN verify ≤ 60% FP o IF 1 CWP has tripped, THEN verify FP has been reduced to limit condenser ΔT to 21° F o IF 1 CDP has tripped, THEN verify FP has been reduced to prevent trip of MFWBPs from low DFT level at ≤ 2 ft 10".
3.2 Verify control rod index will remain in the acceptable region of the insertion limit curve of the COLR during the runback.	Immediately notify the SSOD if the control rod index will be in the restricted or unacceptable regions of the curve.

VERIFICATION	DETAILS
3.3 Verify that imbalance is within limits.	o Observe SPDS imbalance display o Refer to COLR for imbalance limit.
3.4 Verify RCS heat production is balanced to OTSG heat removal.	o SPDS indicates stable TEMP and PRESS parameters are within normal operating box o See Enclosure 1 for Total Feedwater Flow Rates vs. Reactor Power o IF NOT balanced, THEN determine cause of mismatch and make appropriate recommendations.
3.5 Verify DNB parameters are within limits.	DNB Limits 4 RCPs: Th ≤ 604°F; RC PRESS ≥ 2062 psig; RC Flow ≥ 140 mlb/hr 3 RCPs: Th ≤ 604°F; RC PRESS ≥ 2062 psig; RC Flow ≥ 105 mlb/hr IF NOT, THEN refer to ITS 3.4.1, DNB Parameters.

VERIFICATION	DETAILS
NOTE The following steps need to be performed after the runback is complete and the unit stabilized. Because of the transient nature of a runback condition, the order of performance of these steps may need to be adjusted to the individual transient.	
3.6 Verify control rod status.	o Verify all rods aligned within ± 6.5% of group position o Verify all Safety Rods are 100% withdrawn o Verify that APSRs are within insertion limits of the COLR.
3.7 Verify runback endpoint core thermal power.	Selected limiting parameters: o IF an asymmetric rod exists, THEN verify ≤ 60% FP for the RCP combination o IF 1 MFWP or 1 MFWBP has tripped, THEN verify ≤ 55% FP o IF only 3 RCPs are operating, THEN verify ≤ 75% FP o IF 1 MSIV has closed, THEN verify ≤ 60% FP o IF 1 CWP has tripped, THEN verify FP has been reduced to limit condenser ΔT to 21° F o IF 1 CDP has tripped, THEN verify FP has been reduced to prevent trip of MFWBPs from low DFT level at ≤ 2 ft 10". Ex-core NIs are consistent with core thermal power. Total Feedwater Flow vs Reactor Power, Enclosure 1, is consistent with core thermal power.

VERIFICATION	DETAILS
3.8 Verify core ΔT is consistent with core thermal power.	Expected core ΔTs. o With 4 RCPs running: 100% ≈ 44 °F ΔT 75% ≈ 33 °F ΔT 60% ≈ 26.4 °F ΔT 55% ≈ 24.2 °F ΔT. o With 3 RCP's running: 75% ≈ 44 °F ΔT 55% ≈ 32.7 °F ΔT 45% ≈ 26.4 °F ΔT.
3.9 Verify quadrant power tilt within steady state limits.	o Refer to Computer group 59 which updates once every 6 min o Perform quadrant power tilt calculation using core NIs if computer unavailable. See Enclosure 2, Quadrant Power Tilt Calculation o IF NOT, THEN refer to ITS 3.2.4, Quadrant Power Tilt.
3.10 Observe radiation monitors and recorders for unexplained trends.	o IF any atmospheric radiation monitor is in alarm, THEN refer to AP-250, Radiation Monitor Actuation o Observe annunciator monitor display for alarm or warning conditions o Observe radiation monitors and recorders on back of MCB including RB high range monitors.

3.0 FOLLOW-UP ACTIONS (CONT'D)

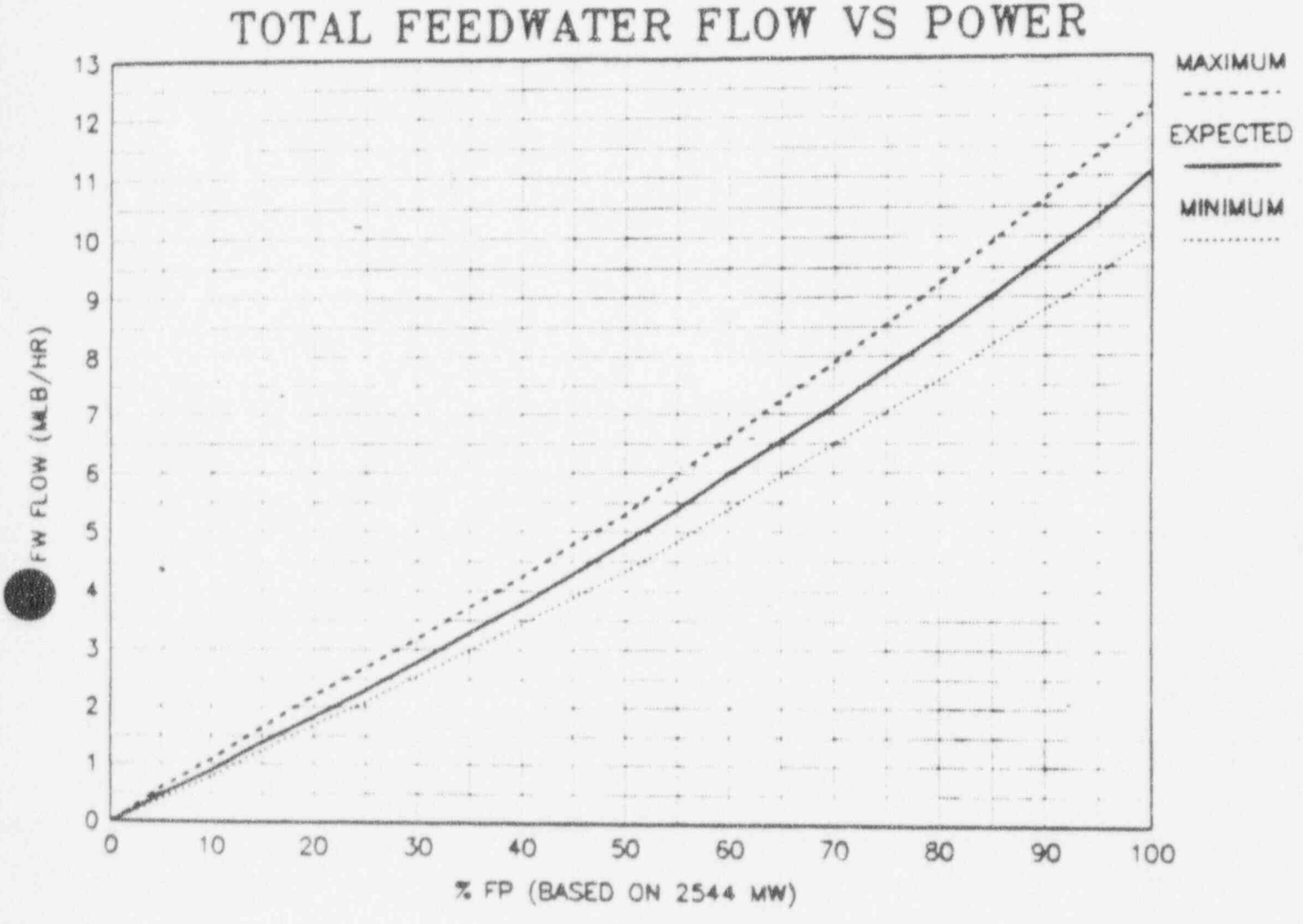
VERIFICATION	DETAILS
3.11 Observe MS radiation monitors and RMA-12 for indications of a OTSG tube leak.	o IF any radiation monitor trend indicates OTSG tube leakage, THEN refer to EOP-06, Steam Generator Tube Rupture.
3.12 Observe for increased RCS leakage.	Observe: o RCP seal PRESS and dumpster frequency o PZR and MUT level trends o RB sump and RCDT level trends o MU flow control valve position and MU flow o IF RCS leakage is suspected, THEN use Enclosure 3 for RCS leakage calculation.
3.13 Determine status of: o PORV o PZR reliefs o PZR HPVs o RCS HPVs	o Acoustic monitors o Annunciator alarms o Computer points for tailpipe TEMPs: ___ RCV-8 R205 ___ RCV-9 R206 ___ RCV-10 R207 o White lights used for flow indicators on ES panels for HPVs.
3.14 Determine status of MSSVs.	o Observe video monitor o Observe tailpipe rope indicator.

3.0 FOLLOW-UP ACTIONS (CONT'D)

VERIFICATION	DETAILS
3.15 Determine availability of all and 4160V and 6900V buses.	o Volt meters and breaker indications on MCB o Annunciator alarms.
3.16 IF any equipment malfunctions during transient, THEN determine if required per ITS.	
3.17 Review alarm summaries for unexplained alarms.	o Review annunciator alarm summary o Review computer alarm summary.
3.18 Determine if entry into the Emergency Plan is required per EM-202.	
3.19 Determine reporting requirements.	o Refer to CP-111, Initiation And Processing of Precursor Cards And Problem Reports o Refer to AI-500, Conduct of Operations o Determine if a Nuclear Network entry is required for the event o Refer to SP-296, Documentation of Allowable Operating Transient Cycles.
3.20 WHEN VP-540 is stopped, THEN notify SSOD.	

ENCLOSURE 1

TOTAL FEEDWATER FLOW VS. REACTOR POWER



ENCLOSURE 2

QUADRANT POWER TILT CALCULATION

IF COMPUTER GROUP 59 IS NOT AVAILABLE THEN PERFORM HAND CALCULATION

NI-5=_____ NI-6=_____ NI-7=_____ NI-8=_____

$$\frac{NI\text{-}5 + NI\text{-}6 + NI\text{-}7 + NI\text{-}8}{4} = \quad = \text{AVERAGE POWER}$$

$$\frac{\_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_ + \_\_\_\_\_}{4} =$$

$$\frac{\text{LARGEST POSITIVE QUADRANT POWER}}{\text{AVERAGE POWER}} - 1 \times 100 = \text{QUADRANT POWER TILT}$$

$$\_\_\_\_\_ - 1 \times 100 =$$

Ex-core NI Calibration

If [Heat Balance - NI Power] is $\geq$ 0.8% RTP notify the SSOD. At no time shall Heat Balance exceed NI power by more than 2.0% on any operable NI power range channel.

(a) Heat Balance (from group 59) _____

(b) NI-5=_____ NI-6=_____ NI-7=_____ NI-8=_____

$$\frac{\_\_\_\_\_}{\text{Heat Balance}} - \frac{\_\_\_\_\_}{\text{NI-5}} = \_\_\_\_\_$$

$$\frac{\_\_\_\_\_}{\text{Heat Balance}} - \frac{\_\_\_\_\_}{\text{NI-6}} = \_\_\_\_\_$$

$$\frac{\_\_\_\_\_}{\text{Heat Balance}} - \frac{\_\_\_\_\_}{\text{NI-7}} = \_\_\_\_\_$$

$$\frac{\_\_\_\_\_}{\text{Heat Balance}} - \frac{\_\_\_\_\_}{\text{NI-8}} = \_\_\_\_\_$$

ENCLOSURE 3

RCS Leakage Calculation

HPI FLOW = MU-23-FI8-1/FI4 + MU-23-FI6-1/FI2 + MU-23-FI5-1/FI1 + MU-23-FI7-1/FI3

MAKEUP FLOW + RCP SEAL FLOW + HPI FLOW - LETDOWN FLOW = RCS LEAK RATE

_____	+	_____	+	_____	-	_____	=	_____
MU-24-FI		MU-27-FI		HPI FLOW		MU-4-FI		RCS LEAK RATE