



Oconee Tube Leak

Chapter 14.0
B&W Cross-Training Course
R-326C

OBJECTIVES

1. List the symptoms of a steam generator tube leak.
2. Describe the actions that should be taken if the tube leakage exceeds technical specification limits.
3. List three actions that can be taken to minimize offsite releases during steam generator tube leakage events.

Appendix – Sequence of Events

9/17/81

- 0000 Plant condition 2150 psig and 535°F
Deboration in progress
- 0543 Reactor critical
increasing power
- 1600 - Reactor power - 60%

9/18/81

- 0800 Reactor power 87.5%, increasing
Condenser off-gas monitor 2RIA-40 reads 3000 cpm (normal)
- 0930 - 2RIA-40: increasing
- 1030 - 2RIA-40: 10,000 cpm
- 1145 - 2RIA-40: 40,000 cpm
Condensate steam air ejector (CSAE) grab sample indicates primary-to-secondary leak of 0.03 gpm
- 1200 - Initiated “Control of Secondary Contamination”
procedure, OP/O/A/1106/31.
- Stopped turbine and powdex sump pumps

Appendix – Sequence of Events

- 1300 - Radiation measurements of “A” and “B” main steam lines show no detectable difference
- 1319 2RIA-40 grab sample: 4.25×10^{-4} mCi/ml gaseous activity
- 1350 - Radiation measurements of main steam lines “A” are background: “B” lines are 0.02 mR/hr above background
- 1420 - Completed rerouting potentially radioactive drains from the turbine building sump to the hotwell pump sump
- 1529 - 2RIA-40: off-scale high
 - Main steam line “B” radiation monitor 2RIA-17 indicates 5 mR/hr
 - Leak determined to be in “B” steam generator
 - Commenced reactor shutdown
- 1543 - Declared “Unusual Event” since tube leak calculated to be approximately 25 gpm
 - Notified authorities
- 1558 - Generator off line
- 1622 - Main feedwater pump “B” manually tripped
- 1627 - Reactor subcritical
 - Cooling down RCS
 - Started additional HPI pump to keep up with “shrink” and leak
- 1632 - Closed SG “2B” feedwater and turbine bypass valves
- 1640 - RCPs 2A2 and 2B2 shutdown
- 1655 - All CRDs inserted

Appendix – Sequence of Events

- 1700 - Condensate storage tank overflows to turbine building trenches
- 1718 - Main feedwater pump “A” manually tripped
- 1750 - 2B OTSG level increasing; 2A OTSG level at 25"
- 1800 - 2B OTSG level is increasing
- 1900 - 2B OTSG level is 40% (operating range)
- 2100 - Made reactor building (RB) entry to line up pressurizer auxiliary spray
- 2200 - Opened bottom drains on 2B OTSG and started drain back to hotwell through blowdown lines

9/19/81

- 0000 - RCS at 286°F, 300 psig
SG “B” pressure is 35 psig
- 0900 - 2LP-2 (LPI suction from RCS) would not open electrically
- 1100 - Made three RB entries to try to open 2LP-2 manually
- 1300 - Reactor building purge on
- 2045 - RCS gross activity 6.4×10^{-1} mCi/ml

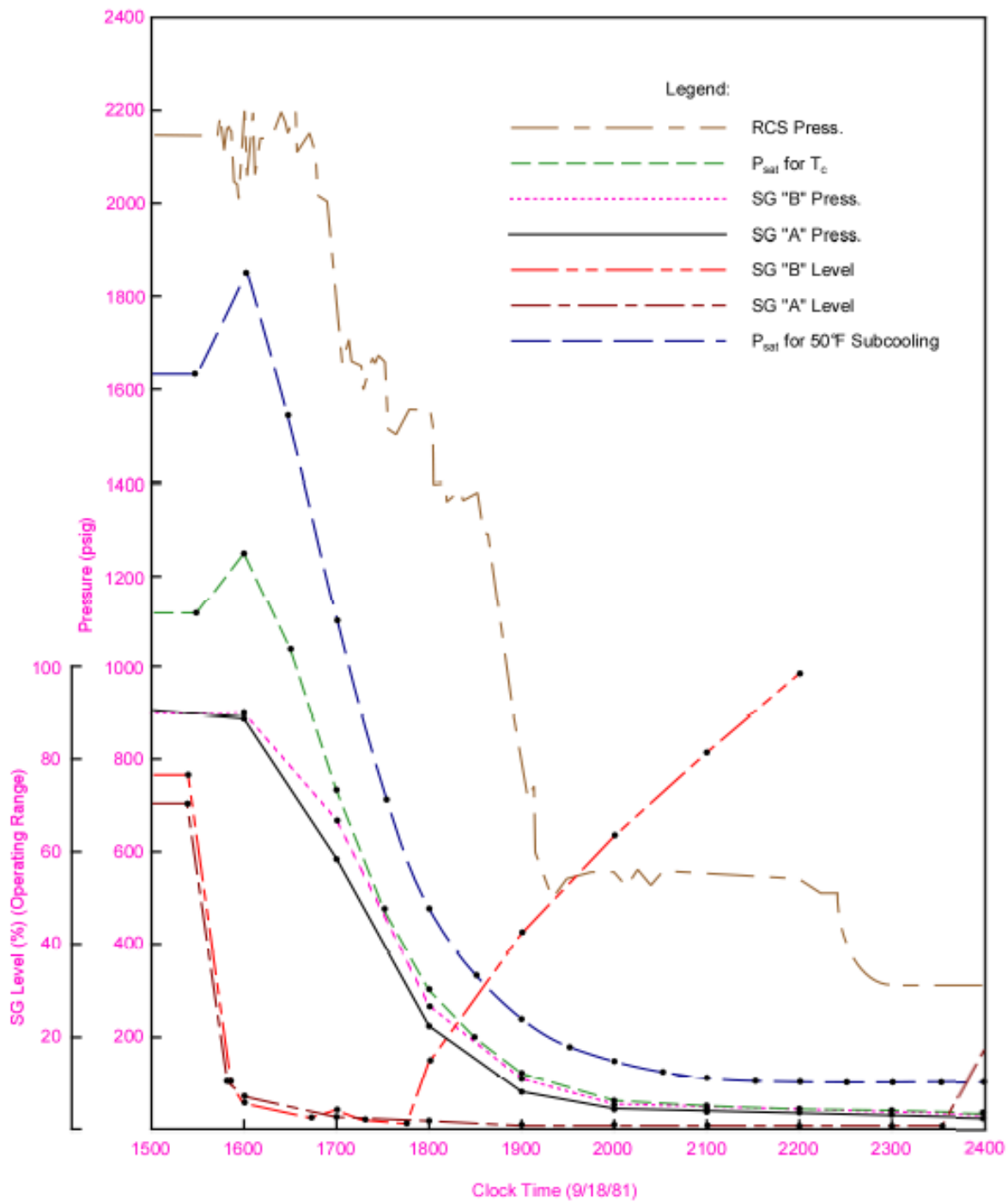
9/20/81

- 0400 - 2LP-2 opened manually by maintenance personnel
- 0647 - Started LPI pump 2A (Decay Heat Removal)
- 0714 - Secured 2AI RCP
- 0930 - CST overflowed to trenches
- 1000 - Broke vacuum on main condenser

Appendix – Sequence of Events

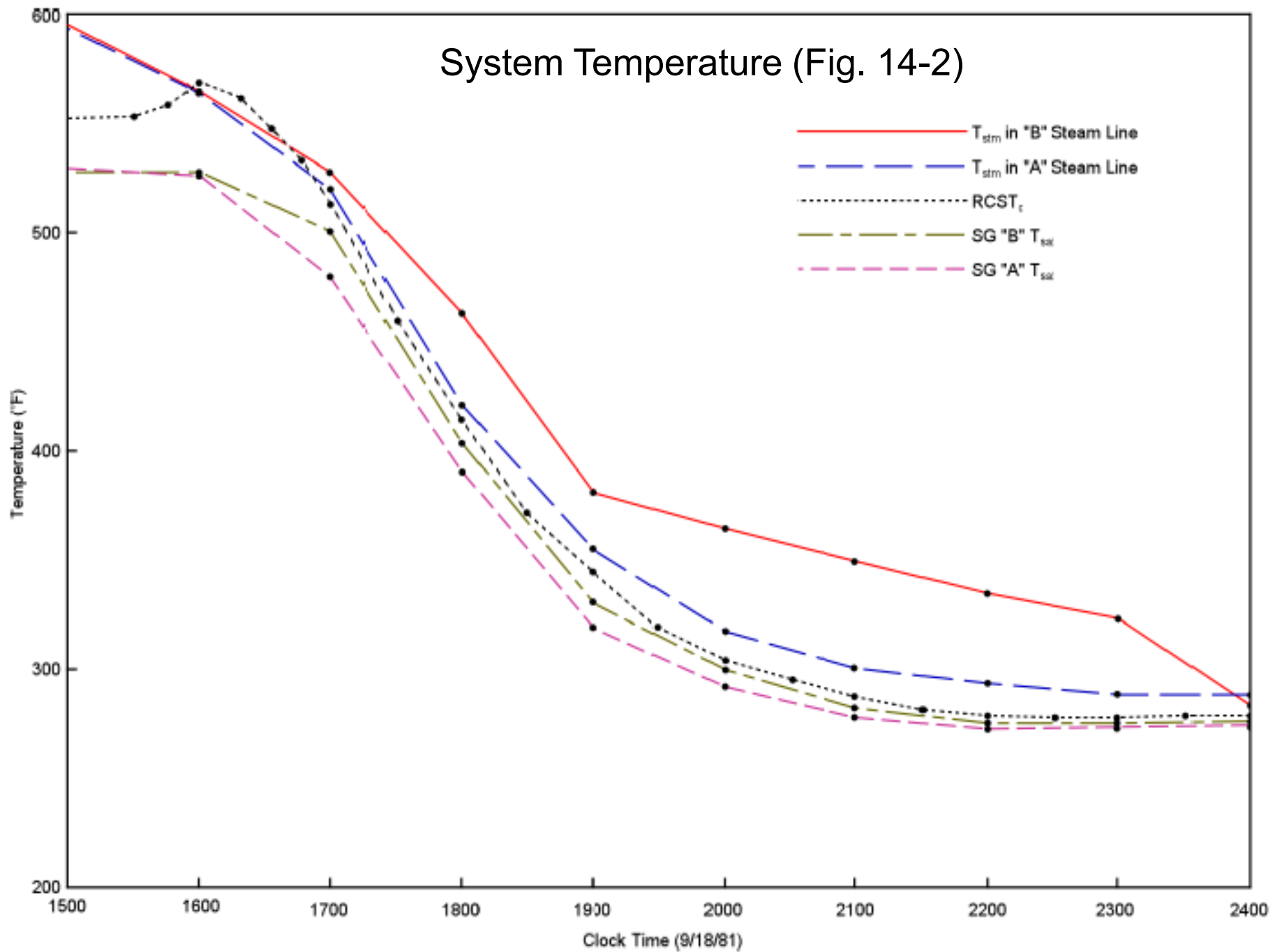
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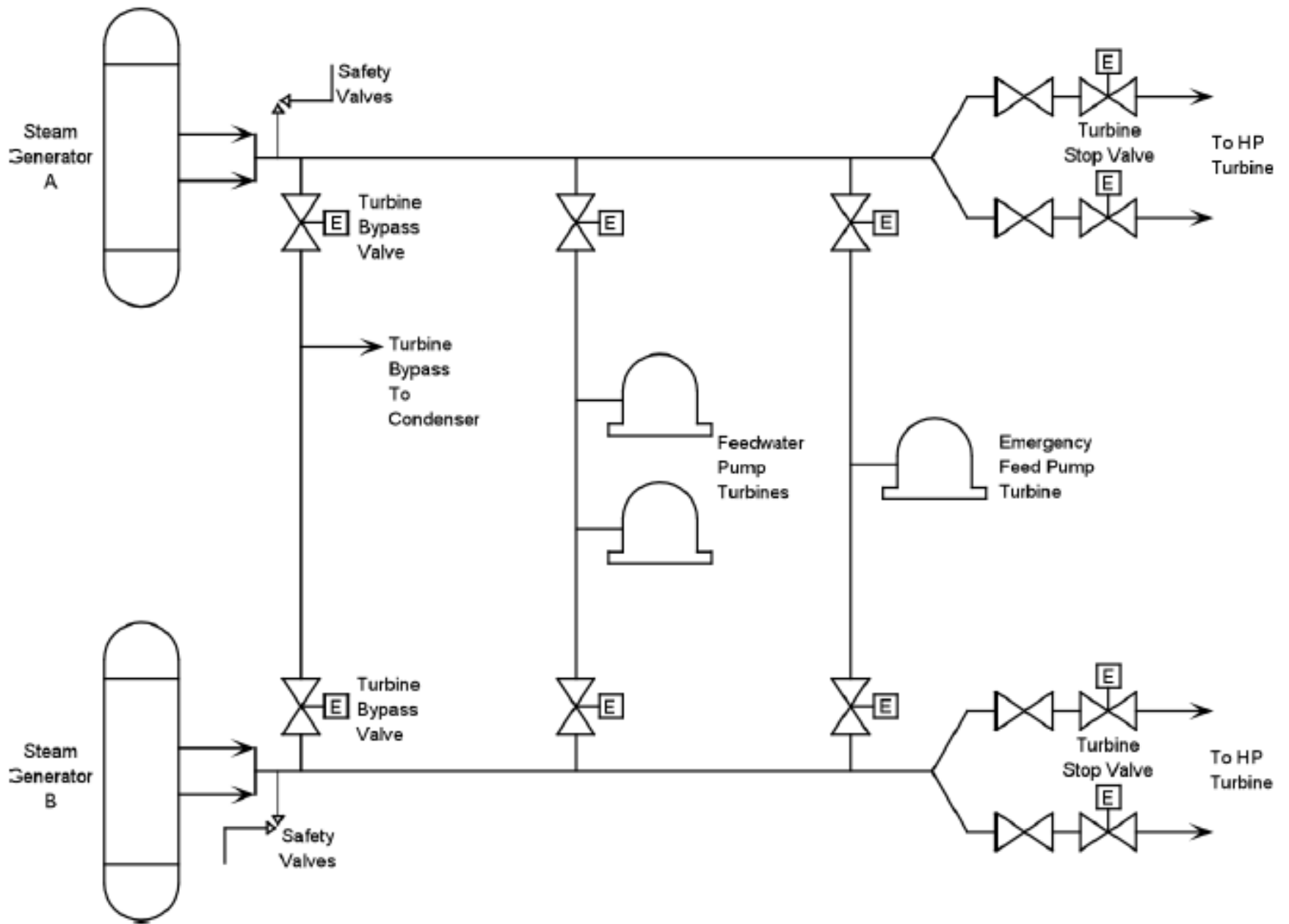
- 0430 - Started pumping down RCS loops
- 0615 - Leak stopped



Pressure and
OTSG Levels
Fig. 14-1

System Temperature (Fig. 14-2)





Oconee 2 Main Steam System (Fig. 14-3)

Oconee 2 Condensate and Feed System Fig. 14-4

