Technical Specifications Sections 3.6 and 3.7

R504B – Chapter 3.0

5. Given Improved Standard Technical Specifications and Bases, specific plant conditions and system knowledge, apply the following ISTS sections to determine the required actions by the licensee:
   a. Definitions in section 1.1
   b. The use of Logical Connectors in section 1.2
   c. Completion Time guidance in section 1.3
   d. Surveillance Frequency guidance in section 1.4
   e. The Safety Limit guidance of section 2.0
   f. General LCO guidance of section 3.0
   g. General SR guidance of section SR 3.0
   h. The LCO and Surveillance Requirements guidance of section 3.1 through 3.10
   i. The Design Feature guidance of section 4.0
   j. The Administrative Controls guidance of section 5.0

FOR ANY T/S RELATED PROBLEM

Review your system understanding

- Of course, critical to this guidance is a sound system understanding.

Review TOC for potential LCO(s)

- Frequently a given component or issue may have effect on multiple specifications.

Review applicability of LCO(s)

- It is not infrequent that improper determinations are made due to the plant condition applicability

Review LCO bases

- A given component having effect on multiple specifications or with different requirements in multiple applicability's may result in inoperability determinations in some but not necessarily all. The LCO bases will clarify these conditions.

Review SR's and bases

- A given surveillance that fails, cannot be performed or cannot be met does not necessarily result in equipment inoperability.

Apply definitions (ALL CAPS)

- Remember that ALL CAPS means some additional detail is contained in the definitions of section 1.1

Apply T/S motherhood statements

- The LCO 3.0 and SR 3.0 motherhood statements frequently provide twists to what seems to be black and white.

Identify the required actions

- What we are trying to accomplish

Section 3.6 Containment Systems

- 3.6.1.1 Containment structure
  - Overall integrity including leakage and boundary
- 3.6.1.2 Containment Airlock
  - Specific requirements and actions for airlock
- 3.6.1.3 Primary Containment isolation valves
  - Deals with each specific penetration (leakage and isolation)
- 3.6.1.4 DW Pressure
  - Maximum DW pressure assumed in accident analysis
- 3.6.1.5 DW Temperature
  - Maximum DW temperature assumed in accident analysis

Section 3.6 Containment Systems

- 3.6.1.6 LLS safety relief valves
  - Low level set SRVs (not modeled in base plant)
- 3.6.1.7 RB to SC vacuum breakers
  - Normally closed (PCIV function) and able to open to protect suppression chamber for negative pressure
- 3.6.1.8 SC to DW vacuum breakers
  - Normally closed (pressure suppression function) and able to open to restore non-combustibles to DW (chugging)
- 3.6.1.9 MSIV Leakage Control system
  - Collects and processes MSIV leakage post-accident (not modeled in base plant)

Section 3.6 Containment Systems

- 3.6.2.1 SP Temperature
  - Maximum SP temperature assumed in accident analysis
- 3.6.2.2 SP Water Level
  - Maximum and minimum SP level assumed in analysis
- 3.6.2.3 SP Cooling:
  - Equipment required to remove heat from SP to heat sink
- 3.6.2.4 SP Spray:
  - Equipment needed to spray SP to lower pressure post-accident
- 3.6.2.5 DW to SC Differential Pressure
  - Maximum design DP to limit downcomer hydraulic forces post-accident (Mark I containment)

Section 3.6 Containment Systems

- 3.6.3.1 DW Cooling fans
  - For mixing of atmosphere post-accident (not modeled)
- 3.6.3.2 Primary Containment Oxygen Conc
  - Maximum O2 concentration to prevent H2 explosion/fire
- 3.6.3.3 Containment Atmosphere Dilution System
  - Used to dilute O2 and H2 w/ N2 post-accident (Mark I)
- 3.6.4.1 Secondary Containment Structure
  - Overall operability of secondary containment
- 3.6.4.2 Secondary Containment Isolation Valves
  - Individual Sec Cont penetrations
- 3.6.4.3 Standby Gas Treatment System (RBSVS)
  - Filtered elevated release pathway for sec containment

The plant is in MODE 1, the Outboard RCIC Steam Line Warmup Isolation Valve, MOV E51-048, fails the quarterly stroke timing test (SR 3.6.1.3.6) and was left in the closed position following the failure. Which LCOs are not met and what are the Required Action(s)?

- Since SR 3.6.1.3.6 failed, LCO 3.6.1.3 is not met
- Condition A is entered since there are 2 PCIVs in series for this penetration (and 2 in parallel)
- Actions A.1 (close and **deactivate** one valve in penetration within 4 hours) AND A.2 (verify isolated once per 31 days AND …) must be entered.
- Also LCO 3.5.3, Condition A should be entered.

During a HPCI pump surveillance in MODE 1, suppression pool temperature reaches 100°F. What is the Required Action(s)? Once the testing is completed, what is the Required Action(s)?

- From ToC (or search suppression pool temperature), LCO 3.6.2.1 applies
- Per the LCO, the limit is 105° during testing: the LCO is met and no action is required.
- When testing is completed, the LCO limit is 90° and Condition A must be entered: verify < 110° once per hour and restore to within limits in 24 hours.

If in MODE 3, how many Conditions can you be in at any one time in for this LCO?

What is required for an OPERABLE Suppression Pool Cooling subsystem? What is required for an OPERABLE Suppression Pool Spray subsystem?

- From ToC (or search suppression pool cooling), LCO 3.6.2.3 applies
- From ToC (or search suppression pool spray), LCO 3.6.2.4 applies
- Per the Bases (LCO section) only 1 pump is required for a subsystem to be OPERABLE.
- Must be independently powered and can't share HX

When an RHR pump becomes inoperable in MODEs 3, what LCOs are applicable?

What if MODE 4? Mode 5?

Section 3.7 Plant Systems

- 3.7.1 RHRSW:
  - Minimum equipment to support LPCI, SP Cooling, SP Spray and SDC (RBSW in base plant)
- 3.7.2 Plant SW
  - Minimum equipment to support diesel cooling, pump coolers and room coolers, includes UHS level (RBSW)
- 3.7.3 DG Standby SW
  - Dedicated SW system for diesel at some plants (not in base plant)
- 3.7.4 MCR Environmental control system
  - Filter trains used to limit exposure to operators post-accident.

Section 3.7 Plant Systems

- 3.7.5 Control Room AC system
  - System needed to cool MCR to protect equipment and personnel
- 3.7.6 Main Condenser Off Gas system
  - Limit radioactive releases to environment from SJAEs
- 3.7.7 Main Turbine Bypass System
  - Minimize pressure transient following turbine trip to prevent exceeding any thermal limit
- 3.7.8 Spent Fuel Pool Water Level
  - Minimum water level in SFP to limit releases during a fuel handling accident

With the plant in MODE 1, the “A” RB Service Water pump fails the quarterly surveillance (use RHRSW LCO 3.7.1) and is declared inoperable. Is LCO 3.7.1 met and if not what is the Required Action?

- Per the Bases (LCO section) 2 pumps are required for a subsystem to be OPERABLE.
- Condition A, action A.1: restore within 30 days

What if the RBSW to “A” RHR HX isolation valve fails?

What if the “C” and “D” RBSW pumps both fail?

What if the RBSW supply valve to the 101 Emergency Diesel fails closed (LCO 3.7.2)?

During the valve stroke of SR 3.7.7.1 while at rated thermal power, a turbine bypass valve will not open. If the valve cannot be repaired, what actions can the licensee take to avoid reducing power?

- Per SR 3.0.1, failure to meet a surveillance is failure to meet the LCO.
- LCO contains an OR statement
- Apply the COLR limits for APLHGR and MCPR when the turbine bypass system is inoperable to LCOs 3.2.1 and 3.2.2.

While in MODE 1, a turbine bypass valve fails open, other than LCO 3.7.7, what other LCOs are impacted by this configuration? (Hint: search the Bases document using “turbine bypass valve”).

- Search should reveal that with a bypass open, the relationship between first stage pressure and power is invalidated.
- Therefore those functions where the bypass is automatically removed at 30% power as measured by turbine first stage pressure would be affected.
- LCO 3.3.3.1 for TSV closure, TCV Fast Closure
- LCO 3.3.4.1 for EOC RPT

Questions?