



STP Risk-Informed Technical Specifications Application

Meeting with NRC
January 21, 2004

Introduction

- STP Participants
 - Rick Grantom Risk Management Manager
 - Drew Richards Applications Development Lead
 - Wayne Harrison Licensing Engineer

Desired Outcomes

- Identify the primary issues with STP proposed Risk-informed TS (RITS) and agree on a process for their resolution
 - Scope of affected TS
 - Exceptions to Risk Managed TS guidance
 - Level of detail required for NRC review
 - PRA and deterministic analyses to be reviewed
 - Configuration Risk Management Program (CRMP)

Proposed Agenda

- Submittal schedule
- Scope and content of the STP application
 - Exceptions to RMTS Guidelines
- Implementation example
 - Standby Diesel Generator (SDG) 113 day extended allowed outage time
- Level of detail required for NRC review

Submittal Schedule

- Submitted “Letter of Intent” with proposed changes in early 2003
 - Driver and basis for this meeting
 - Identify and resolve policy issues
 - Propose STP as a pilot
 - Provides opportunity for industry involvement
- Formal License Amendment submittal 90 days after major issues are resolved
- Final approval in mid to late 2004

Scope and Content

- Selected instrumentation of TS 3.3
- Code safety valves
- Pressurizer PORVs
- Accumulators
- ECCS
- RHR
- RWST
- RCB Purge
- Containment Spray
- Containment Fan Coolers
- AFW
- MSIVs
- MFIVs
- Atmospheric Steam Relief
- Component Cooling Water
- Essential Cooling Water
- CRE HVAC
- FHB HVAC
- Essential Chilled Water
- SDGs and Off-site circuits
- Batteries
- ESF Buses

Exceptions to Guide

- Comparison to “Standard RITS”
 - References the Implementation Guidelines
 - Takes exception to proscription against allowing loss of function
 - Would apply to conditions where TS 3.0.3 currently applies.
 - TS 3.13 format is different, but the application is the same

Draft TS 3.13

RISK MANAGEMENT

ALLOWED OUTAGE TIME DETERMINATIONS

LIMITING CONDITION FOR OPERATION

3.13.1 When referred to this specification, equipment that has been removed from service or declared inoperable shall be evaluated for its impact on plant risk and allowed outage times determined accordingly.

APPLICABILITY: As required by the referencing specification

ACTION:

Determine that the configuration is acceptable for Completion Time extension beyond the [Front Stop AOT],

AND

Determine that the configuration is acceptable for continued operation beyond the [Front Stop AOT] whenever configuration changes occur that may affect plant risk,

AND

Restore required inoperable [subsystem, component] to OPERABLE status within the Acceptable Allowed Outage Time Extension or 30 days, whichever is shorter.

OR

Take the ACTION required in the referencing specification for required action or completion time not met

SURVEILLANCE REQUIREMENTS

4.13.1: As required by the referencing specification

Sample Specification

PLANT SYSTEMS

3/4.7.4 ESSENTIAL COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.4 At least three independent essential cooling water loops shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With only two essential cooling water loops OPERABLE, **within 7 days** restore at least three loops to OPERABLE status **or apply the requirements of Specification 3.13, OR** be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. **With two or more essential cooling water loops inoperable, within 12 hours** restore at least two loops to OPERABLE status or apply the requirements of Specification 3.13, **OR** be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

Level of Detail Needed for NRC Review

- Table 2 of STP application addresses each proposed change
 - Deterministic and risk basis for each change
- PRA quality issues to be addressed as part of the RG 1.200 pilot
- Implementation
 - Configuration Risk Management Procedure

Application of RITS

Example 1: Routine Train A work week with emergent Train B condition

Time (hh:mm)	Event	Frontstop	Calculated AOT (time to reach 1E-05)	Risk (/hr)	Comment
00:00	Begin Train A work week (SDG, ECW, CCW, HHSI)	HHSI (3.5.2.a): 7 days CCW (3.7.3.a): 7 days ECW (3.7.4.a): 7 days SDG (3.8.1.1.b): 14 days	NA, planned to remain within frontstop allowed outage time.	5.9E-09	Routine planned maintenance
24:00	Train B HHSI found to be inoperable	3.5.2.b: 6 hours to apply TS 3.13	24 days	1.7E-08	Emergent condition where CTS would require TS 3.0.3 entry. RITS permits the station to address the condition with normal work controls.
36:00	Train B HHSI restored	Exit TS 3.5.2.b and TS 3.13 applicability. Back on the work week clock with 36 hours elapsed.	NA	5.9E-09	

Application of RITS

Example 2: Emergent condition while in configuration where TS 3.13 is in use

<u>Time</u> (hh:mm)	Event	Frontstop	Calculated AOT (time to reach 1E-05)	Risk (/hr)	Comment
00:00	ECW pump replacement expected to last 10 days.	TS 3.7.4.a: 7 days (Also makes associated SDG inoperable)	1 train of ECW could be allowed OOS up to the 30-day backstop	4.5E-09	TS 3.13 requirements apply after 7 days. The risk is calculated from the time the ECW is taken out of service.
8 days	Turbine-driven AFW found to be inoperable	TS 3.7.1.2.b: 72 hours TS 3.8.1.1.d: 24 hours	27 days	1.5E-08	Regardless of the frontstop time for the TDAFW pump, TS 3.13 applies because the ECW has gone beyond its frontstop. TS 3.13 requires a determination of the acceptability of the configuration with the additional inoperable TDAFW. Application of the CRMP would determine the configuration is acceptable.
9 days	ECW pump is restored	TS 3.7.1.2.b: 72 hours less the 24 hours that have transpired.	> 30 days (backstop would apply)	1.5E-09	The condition that caused TS 3.13 to apply has been exited and there are no TS beyond their frontstop time. The frontstop AOT may be applied to the TDAFW.

Application of RITS

Example 3: Same as Example 2, except that the emergent condition is restored first

<u>Time</u> (hh:mm)	Event	Frontstop	Calculated AOT (time to reach 1E-05)	Risk (/hr)	Comment
00:00	ECW pump replacement expected to last 10 days.	TS 3.7.4.a: 7 days	1 train of ECW could be allowed OOS up to the 30-day backstop	4.5E-09	TS 3.13 requirements apply after 7 days. The risk is calculated from the time the ECW is taken out of service
8 days	Turbine-driven AFW found to be inoperable	TS 3.7.1.2.b: 72 hours TS 3.8.1.1.d: 24 hours	27 days	1.5E-08	Regardless of the frontstop time for the TDAFW pump, TS 3.13 applies because the ECW has gone beyond its frontstop. TS 3.13 requires a determination of the acceptability of the configuration with the additional inoperable TDAFW. Application of the CRMP would determine the configuration is acceptable.
9 days	TD AFW restored	NA	> 30 days	4.5E-09	TS 3.13 still applies. TDAFW no longer contributes to risk calculation. A new completion time may be calculated.

SDG 22 113 Day Extended AOT

- One-time emergency TS Change approved on December 30, 2003
- Configuration risk to be managed by application of the STP Configuration Risk Management Program (CRMP).
- Good example of how the CRMP works
 - Duration and risk bound any that would be encountered using proposed RITS

SDG 22 113 Day Extended AOT

- AOT extension met RG 1.174 and RG 1.182 acceptance criteria
- Installed non-safety DGs (NDG) as compensatory action
 - RG criteria met without credit for NDGs
- STPNOC is closely monitoring the risk profile

SDG 22 113 Day Extended AOT

Comparison of Planned and Actual Risk (ICCDP) for Unit 2 During SDG 22 Outage

Data source: NDG Planned - PRA Rev 4 Model including NDG effect on risk (NDG failure and associated operator data are assumed)
 Rev 4 Planned - PRA Rev 4 Model assuming no NDG effect on risk
 Actuals - RASCAL data for previous work week and PRA Rev 4

