RISK INFORMED TECHNICAL SPECIFICATION TASK FORCE (RITSTF)
INITIATIVE STATUS

INITIATIVE	TITLE	INITIATIVE STATUS	NEXT ACTION/ SCHEDULE/ RESPONSIBILITY	TSTF
1	Technical Specification Required Actions Preferred End States	SE for CEOG Topical issued. CEOG-152 R1 which will become TSTF 422 R0 has been drafted. BWROG SE expected early 2002.	NRC provided responses to Industry comments on the CE Topical SE as proposed to be implemented in a TSTF on 10/31/01. NEI will provide more detailed responses to NRC questions by 1/7/02. BWROG provided responses to the NRC RAIs on 10/31/01 and the NRC is currently reviewing these RAI responses. TSTF will provide TSTF 422 to the NRC by 1/31/02.	CEOG - TSTF 422 R0 WROG - TSTF 423 R0
2	Missed Surveillances SR 3.0.3	TSTF-358, R6, has been approved and published for CLIIP adoption.	Initiative Complete Essentially all plants will have submitted a plant specific LAR by 6/30/02.	TSTF 358 R6
3	Increase Fexibility In Mode Restraints LCO 3.0.4	Provided NRC draft of TSTF-359, R6 on 10/12/01.	NEI provided responses and TSTF 359 R6 Draft for NRC review to NRC RAIs on 10/19/01. NRC reviewed and provided comments RITSTF on 12/17/01. RITSTF and NRC agreed to the	TSTF 359 R6

INITIATIVE	TITLE	INITIATIVE STATUS	NEXT ACTION/ SCHEDULE/ RESPONSIBILITY	TSTF
			resolutions to the NRC comments at the 12/19/01 meeting and RITSTF agreed to incorporate these resolutions into TSTF 359. TSTF will provide final TSTF 359 R6 to the NRC by 1/31/02.	
4a	Individual Risk Informed AOTs	Individual Owners Groups (OGs) and plants are pursuing individual Risk Informed AOTs through Topicals and LARs	Ongoing	Various
4b	Risk Informed AOTs With CRMP/MR Backstops	RITSTF provided the NRC a revised White Paper addressing the NRC comments on 10/12/01.	NRC will provide feedback and comments to the RITSTF on the White Paper by 1/15/02. RITSTF will provide the NRC with a list of parameters and values to which this Initiative does not apply as a part of the RITSTF responses to the NRC comments of 1/15/02. RITSTF will provide an example of how 3.8.1, AC Sources, would be marked up and would work in relation to a supported system, such as ECCS as a part of the RITSTF responses to the NRC comments of	TSTF 424 R0

RISK INFORMED TECHNICAL SPECIFICATION TASK FORCE (RITSTF)
INITIATIVE STATUS

INITIATIVE	TITLE	INITIATIVE STATUS	NEXT ACTION/ SCHEDULE/ RESPONSIBILITY	TSTF
			1/15/02. RITSTF will provide some examples of the processes and TS as a part of the RITSTF responses to the NRC comments of 1/15/02. RITSTF will coordinate with STP to integrate the generic Initiative 4b and the STP approach TSTF will provide TSTF 424 to the NRC by 6/30/02.	
5a	Relocate SRs Not Related to Safety	Deterministic Position of Initiative 5 sent to TSTF.	TSTF reviewing candidate SRs to be relocated. TSTF will provide a TSTF to the NRC by 8/02.	
5b	Relocate STIs to Licensee Control	NRC provided comments on an RITSTF White Paper.	NRC provided comments on the RITSTF White Paper. RITSTF will provide a revised White Paper in response to the NRC comments to the NRC by 1/31/02.	TSTF 425 R0
6a	Modify LCO 3.0.3 Actions and Timing 1 hour - 24 hours	On Hold	On Hold	

RISK INFORMED TECHNICAL SPECIFICATION TASK FORCE (RITSTF)
INITIATIVE STATUS

INITIATIVE	TITLE	INITIATIVE STATUS	NEXT ACTION/ SCHEDULE/ RESPONSIBILITY	TSTF
6b	Provide Conditions in the LCOs for Those Levels of Degradation Where No Condition Currently Exists to Preclude Entry Into LCO 3.0.3		CEOG and RITSTF will respond to RAIs by 1/31/02. CEOG will develop a TSTF for RITSTF review by 5/30/02. TSTF will provide TSTF 426 to the NRC by 9/02.	TSTF 426 R0
6c	Provide Specific Times in the LCO For Those Conditions That Require Entry Into LCO 3.0.3 Immediately		CEOG and RITSTF will respond to RAIs by end of 1/31/02. CEOG will develop a TSTF for RITSTF review by 5/30/02. TSTF will provide TSTF 427 to the NRC by 9/02.	TSTF 426 R0
7	Impact of Non TS Design Features on Operability Requirements	RITSTF provided a White Paper to the NRC. NRC comments indicate no major issues and RITSTF can proceed.	RITSTF provided enhanced White Paper to NRC at meeting 12/19/01. NRC will review enhanced White Paper and provide comments by 1/31/02. TSTF will provide TSTF 372 R1 (Snubbers only) to the NRC by 1/31/02. TSTF will provide TSTF 427 to the NRC by 3/30/02.	TSTF 427 R0

BWOG - Active in Initiatives 1, 3 and 4

BWROG - Active in Initiatives 1, 3, 4 and 5

CEOG - Active in Initiatives 1, 3, 4, 5 and 6

TS INITIATIVE 7

Impact of non technical specification design features on OPERABILITY requirements

Definition:

Provide for a deferral time, prior to entering limiting condition for operation, for equipment having technical specification OPERABILITY requirements, when the primary safety function of the equipment is maintained, but non technical specification design features in place solely to address low probability initiating events are degraded or not functional. During the time interval of deferred entry into the limiting condition for operation, the condition will be evaluated and managed under the maintenance rule plant configuration control requirement (10 FR 50.65(a)(4), and associated industry guidance (NUMARC 93-01, Revision 3).

Discussion:

In order to meet the definition of OPERABILITY, a system, subsystem, division, component, or device shall be capable of performing its specified safety function(s), and all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for performance of the safety function are also capable of performing their related support function(s). The "specified safety function" is that described in the basis for the technical specification, and which is necessary to address the conditions of the accident analysis contained in the updated final safety analysis report.

Important support systems, including instrumentation, normal and emergency electrical power, and cooling water, have specific technical specification requirements (including surveillance requirements, limiting conditions for operation and action requirements), with respect to their ability to support the frontline equipment in its performance under design basis accident conditions. This initiative would not replace the existing technical specification requirements for support equipment appearing in technical specifications (other than to the extent that the support equipment itself may also possess design features for low probability initiators that would fall under this initiative.) However, many equipment design features that do not directly appear in technical specifications have the potential to impact the OPERABILITY definition.

NRC generic letter 91-18 provides general guidance on the treatment of degraded conditions with respect to operability; and states that "…the fact that a system is not fully qualified does not, in all cases, render the system unable to perform its specified function if called upon". However, the guidance of generic letter 91-18 is primarily focused on degraded conditions that are discovered during the course of plant activities, and is less specific about the situations where equipment design features are temporarily altered to facilitate maintenance activities. Further the generic letter is not risk-informed, and predates the promulgation of the maintenance rule configuration assessment requirement, 10 CFR 50.65 (a)(4), which was specifically developed to address risk impact of maintenance activities. Implementation guidance for this section of the maintenance rule discusses the need to address temporary plant alterations through risk analysis and management, but the use of the (a)(4) approach does not relieve technical specification compliance issues. Thus, the intent of this initiative is to reduce existing inconsistency with the maintenance rule relative to design features not contained directly in the technical specifications

Certain support equipment, such as snubbers, containment penetration overcurrent protective devices, and motor thermal overload protection devices, were originally listed in the technical specifications, but were removed through the ITS conversion process. However, operability issues have continued to arise with respect to this equipment, and a new LCO, 3.0.8 has been proposed to link this specific category of support equipment to the supported system. For situations where the support equipment is not functional, this LCO will provide for a deferral period during which the limiting condition for operation for the supported system is not entered. Initiative 7 would not affect that equipment addressed by proposed LCO 3.0.8., but would provide a similar approach for other non technical specification design features, through a risk informed approach.

Typically non technical specification design features are in place to provide for equipment functionality during design basis accident conditions, such as high energy line breaks, large LOCAs, seismic events, internal floods, fires, and other infrequent events. Because of the very low initiator frequency, probabilistic safety analysis would generally show the functionality of these features to be of low risk significance. A simplified risk analysis approach is presented later in this paper.

Maintenance situations may arise where the frontline system remains capable of performing its major safety function (e.g., provide injection at design flowrate and pressure, provide negative reactivity insertion, etc.), but design features as described above are temporarily degraded or nonfunctional. An example would be a maintenance activity involving the removal of a high energy line break barrier, or a maintenance activity involving the temporary opening of a door that normally provides protection against internal flood due to a LOCA. The technical specification equipment protected by the HELB barrier, or door, remains functional for plant transients or accidents other than those protected against by the door or barrier, but the technical specification equipment is INOPERABLE by the existing definition, as it does not meet all conditions of the accident analysis.

The configuration assessment provision of the maintenance rule requires risk assessment and management of temporary plant modifications to the above type design features, when their functionality is affected through temporary plant alterations or compensatory measures necessary to facilitate maintenance activities. This assessment involves the consideration of PSA insights, including initiator frequencies, dependencies, common cause failures, and other issues of potential risk impact. Further, the configuration management program defines risk management actions as appropriate based on the assessment results (e.g., control the duration of the degraded condition to a specific duration, limit work on redundant trains, etc.) However, the technical specification OPERABILITY requirements are independent of, and cannot presently be affected by, the conclusion of the risk assessment, or the use of risk management actions.

By providing an LCO entrance deferral time for the supported system, when design features are altered, technical specifications can be made more consistent with the configuration risk management approach of the maintenance rule. The proposed approach of this initiative is to provide a new LCO 3.0.9, describing the approach and any conditions on its use, and a new Bases table (derived from Table 1 of this paper) which would list risk-informed deferral times due to non-functionality of listed design features. The risk-informed time limits are a function of the specific initiating events, and associated frequencies, that the features are designed to protect against. It is proposed that the following conditions would apply:

1. The new LCO 3.0.9 would reference the performance of the 10 CFR 50.65(a)(4) assessment, and note that, if the assessment and associated risk management actions suggest the need for a shorter duration than provided by the table (due to unique temporary plant configuration issues), the assessment result would be controlling.

2. The new LCO 3.0.9 would expand the applicability of the risk assessment from those situations involving temporary plant alterations or compensatory

measures to facilitate maintenance activities, to any situation involving a degraded or nonfunctional design feature as described in the Bases table (thus providing a risk informed alternative to the generic letter 91-18 approach).

3. The new LCO 3.0.9 would limit the use of the provision, at a given time, and for specific initiating event(s), to one train of a multi-train safety system.

Proposed LCO 3.0.9

When a technical specification LCO is not met solely due to a degraded or nonfunctional design feature (identified in Bases table), the technical specifications LCO is considered to be met, for the time period beginning with the discovery (or implementation) of the condition until the associated delay time (identified in Bases table) for the non-technical specification design feature has expired. This is an exception to LCO 3.0.2 for the technical specifications supported system. The following conditions must be met to utilize this provision:

1. For a multi-train system designed to mitigate a specific initiating event or events (listed in Bases table X.X.X), the deferral time provision may be used for one train of the system at a single time, for a given initiating event or events.

2. For the interval of the deferral time, the degraded design feature will be evaluated and managed under the maintenance rule plant configuration control requirement (10 CFR 50.65(a)(4), and associated industry guidance (NUMARC 93-01, Revision 3.). Should the assessment and risk management actions for a specific plant configuration provide a deferral time that is shorter than that listed on the table, the (a)(4) risk management action shall be implemented.

3. This provision is applicable whether the design feature degradation is due to maintenance or due to a discovered condition.

4. Upon expiration of the non-technical specifications support system deferral time, the technical specification supported system shall be declared inoperable and the applicable conditions and required actions for the technical specifications supported system shall be entered in accordance with LCO 3.0.2.

Table 1 describes categories of equipment features not explicitly described in technical specifications, and discusses whether these features should or should not be considered for Initiative 7. Table 2 distills and expands the information from Table 1 to present an expanded list of protective functions, essentially defining the scope of this initiative.

Table 1

Protective Function	Relevant Initiators	Comments
1) Doors and barriers (e.g., system, component, or train protected by door or barrier), hatch plugs, flood curbs, fire barriers [1]	- Internal floods (MFLB) - External floods - HELB outside containment - Internal fires	**Initiative 7 candidate.** Low frequency events for most PRAs.
2) Seismic supports, snubbers, lead shielding [1]	- Earthquake (Seismic)	**Initiative 7 candidate.** Low frequency event.
3) Automatic actuation capability [of single train] not available, but restoration capability provided [2]	- Large LOCA - Design-basis events that require quick automatic actuation (i.e., there is no time for manual actuation)	**Initiative 7 candidate.** Large LOCA events are low frequency. For other design basis events, candidacy is a function of the frequency of event. Only a candidate when time for manual actuation exists for events other than those for which the automatic actuation was designed.
4) Monitoring instrumentation	- Loss of instrumentation to specified system train	**Initiative 7 Candidate.** However, if disabling of monitoring instrumentation has an impact on the functionality of the protected equipment, then this is not a viable candidate.
5) External water sources	- Low water levels in river/lake	**Not a candidate.** Effects not isolated to single train.
6) Lubrication	- Wrong oil/lack of oil	**Not a candidate.** Disables internal intrinsic function.

Protective Function	Relevant Initiators	Comments
7) Area temperature (high/low)	- Unfavorable weather conditions cause equipment to operate outside of specified temperature range	**Not a candidate.** Global effects not isolated to single train. .
8) Cooling/ventilation loss to single train	- Removal/loss of cooling/ ventilation function (e.g., loss of HVAC)	**Initiative 7 candidate** only if limited to a single train. (individual equipment specific to a train)

1. Consider protective functions in this column when there is a TS impact, e.g., removal of fire barriers at some plants would typically not result in a TS declaration of inoperability, but may require establishment of a fire watch or other compensatory measure under the fire protection program.

2. Disabling of the automatic actuation capability would not typically disable the function of the protective equipment, i.e., manual actuation is still feasible, except for the relevant initiators identified in Column 2.

Table 2
Protective Function versus Initiating Event

Protective Function	Initiating Event
Fire doors	- Internal fire
Flood doors	- Internal and external flood
Hatches	- HELB outside containment - Internal and external flood
Fire Barriers	- Internal fire
Lead shielding	- Seismic
Monitoring instrumentation	- Loss of instrumentation to specified system train
Plugs	- Internal and external flood
HELB barriers	- HELB outside containment
Flood curbs	- Internal and external flood
Seismic supports	- Seismic
Snubbers	- Seismic

Protective Function	Initiating Event
Automatic actuation capability	- Large LOCA - Design basis events that require quick automatic actuation (i.e., there is no time for manual actuation)
Cooling/ventilation loss to single train [1]	- Loss of HVAC - Seismic

1. Only if limited to a single train (individual equipment specific to a train), e.g., Engineered Safeguards Air Handling Unit that cools an individual train pump.

Estimation of the "deferral time"

The deferral time, T_D, can be estimated by first developing an expression for the core damage probability (ΔCDP) that would be attributed to the appropriate initiating event occurring during the deferral time and failing a specific piece of Technical Specification equipment. For example, while curbs used to prevent flooding were removed to permit the transport of some heavy equipment, a flood occurred, which caused the failure of one train of a safety injection system.

This development will consider three different parameters:

1. the length of time the protective function is unavailable, or the deferral time, T_D (hours)
2. the initiating event (frequency) for which the protective function is designed to mitigate
3. the importance (to core damage frequency, CDF) of the Technical Specification equipment (train or component) for which the protective function is designed to protect

The first parameter can be used to estimate the unavailability of the protective function over the period of one year. This is estimated as:

$$\frac{T_D}{8766}$$

The second parameter will be accounted for as the ratio of the specific initiating event frequency (e.g., flood) to the total initiating event frequency, i.e., the fraction of the total initiating event frequency that must be considered. This must be multiplied by the unavailability of the protective function to account for only the time when the initiating event could damage the protected Technical Specification train or component. Thus, the second parameter, which will account for the decrease in CDP, is estimated as:

$$\frac{T_D}{8766} \times \frac{Specific\ Initiating\ Event\ Frequency\ (/\ reactor{-}year), IE_i}{Total\ Initiating\ Event\ Frequency\ (/\ reactor{-}year), IE_T}$$

The third parameter is simply the risk achievement worth (RAW) for the protected Technical Specification equipment (train or system). This parameter will account for the increase in CDP as a result of the initiating event occurring while the protective function is unavailable.

Therefore, the ΔCDP or the Incremental Conditional Core Damage Probability (ICCDP) can be estimated by multiplying the second and third parameters by the base CDF:

$$ICCDP = \frac{T_D}{8766} \times \frac{IE_i}{IE_T} x\, RAW_j \times CDF_{base}$$

where RAW_j is the risk achievement worth for the Technical Specification equipment (train or component) that normally would be protected from the effect of the initiating event (with frequency IE_i) by the unavailable protective function.

Solving the above equation for T_D (in hours), yields:

$$T_D = \frac{ICCDP \times 8766}{CDF_{base} \times \frac{IE_i}{IE_T} \times RAW_j}$$

To estimate T_D, some generic estimates will be used. A value of $5x10^{-5}$/reactor-year will be used as the base (internal) CDF (CDF_{base}); this value is typical for pressurized water reactors (PWRs) (and conservative for boiling water reactors, BWRs). The value from Regulatory Guide 1.177 of $5x10^{-7}$/reactor-year will be used for the ICCDP. Since the relevant initiating events consist of floods (internal and external), fires, high energy line break (HELB), and loss of coolant accidents (LOCAs), an initiating event for any of these would be expected to be less than 10^{-3}/reactor-year. The total initiating event frequency, i.e., the sum of all initiating events considered in a probabilistic risk assessment (PRA), is on the order of 1.0/reactor-year. For this development, conservatively assume the ratio of IE_i/IE_T is approximately 0.001. This should allow for any uncertainty and variability in the total initiating event frequency. It is more difficult to estimate a typical, generic value for the RAW of the protected equipment. Accordingly, the estimation is performed for RAW values of 2, 10, 50, and 100. The results of the estimation for T_D are provided in the table below.

RAW	T_D (hours)	T_D (days)
2	43830	1826
10	8766	365
50	1753	73
100	877	37

In light of these results, it is recommended that the industry simply request a static deferral time of 30 days for all protective functions. In those cases where RAW exceeds 100 or the IE_i/IE_T ratio exceeds 0.001, no deferral time would be permitted.

WOG - Active in Initiatives 1, 3, 4, and 5