

May 3, 2006

TSTF-06-07

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

SUBJECT: TSTF-427, Revision 2, "Allowance for Non Technical Specification Barrier Degradation on Supported System OPERABILITY"

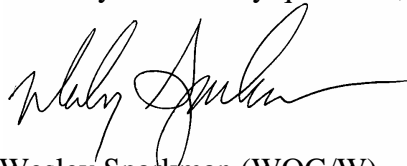
Dear Sir or Madam:

Enclosed for NRC review is Revision 2 of TSTF-427, "Allowance for Non Technical Specification Barrier Degradation on Supported System OPERABILITY."

This Traveler supports Nuclear Energy Institute (NEI) Risk Informed Technical Specification Task Force (RITSTF) Initiative 7a, "Impact of Non Technical Specification Design Features on Operability Requirements - Barriers." The Traveler was revised to address changes to the associated implementation guidance document, NEI 04-08, "Allowance for Non-Technical Specification Barrier Degradation on Supported System Operability (TSTF-427)." NEI 04-08 was submitted to the NRC by NEI on April 4, 2006.

We request that NRC review of the Traveler be granted a fee waiver pursuant to the provisions of 10 CFR 170.11. Specifically, the request is to support NRC generic regulatory improvements (risk management technical specifications), in accordance with 10 CFR 170.11(a)(1)(iii). This request is consistent with the NRC letter to A. R. Pietrangelo on this subject dated January 10, 2003.

Should you have any questions, please do not hesitate to contact us.



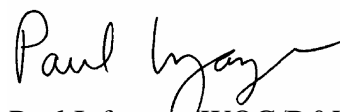
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Enclosure

cc: Tim Kobetz, Technical Specifications Section, NRC  
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## Technical Specification Task Force Improved Standard Technical Specifications Change Traveler

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### Allowance for Non Technical Specification Barrier Degradation on Supported System OPERABILITY

NUREGs Affected:  1430  1431  1432  1433  1434

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Classification: 1) Technical Change

Recommended for CLIP?: Yes

Correction or Improvement: Improvement

NRC Fee Status: Exempt

Benefit: Increases Equipment Operability

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Industry Contact: Paul Infanger, (352) 563-4796, paul.infanger@pgnmail.com

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See attached.

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### Revision History

#### OG Revision 0

**Revision Status: Closed**

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Revision Proposed by: BWO

Revision Description:

Original Issue

#### TSTF Review Information

TSTF Received Date: 03-Feb-03

Date Distributed for Review 03-Feb-03

OG Review Completed:  BWO  WOG  CEOG  BWROG

TSTF Comments:

Several review rounds by the TSTF and RITSTF to develop final product.

TSTF Resolution: Approved

Date: 03-Mar-03

#### NRC Review Information

NRC Received Date: 04-Mar-03

NRC Comments:

Date of NRC Letter: 13-Nov-04

NRC provided comments in a letter dated June 26, 2003. TSTF to respond.

The Specification and Bases and justification are modified to clarify that the provisions of the proposed LCO 3.0.9 are not required when a degraded barrier does not result in the supported system being inoperable. A reference to Regulatory Information Summary 2001-09, "Control of Hazard Barriers," dated April 2, 2001, is added.

The change to the definition of Operability is deleted based on feedback from the NRC.

NRC provided additional comments on 11/13/04. TSTF to respond.

Final Resolution: Superseded by Revision

Final Resolution Date: 13-Nov-04

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03-May-06

**TSTF Revision 1****Revision Status: Closed**

Revision Proposed by: TSTF

Revision Description:

Revised Traveler and justification to address NRC RAI. Removed change to definition of OPERABILITY. Added 24 hour allowance to restore required OPERABLE train for emergent conditions.

**TSTF Review Information**

TSTF Received Date: 24-Oct-05

Date Distributed for Review 13-Jan-06

OG Review Completed:  BWO  WOG  CEOG  BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved

Date: 03-Feb-06

**NRC Review Information**

NRC Received Date: 03-Feb-06

NRC Comments:

TSTF-427 to be revised to be consistent with NEI 04-08, "Allowance for Non-Technical Specification Barrier Degradation on Supported System Operability (TSTF-427)."

Final Resolution: Superseded by Revision

Final Resolution Date: 07-Apr-06

**TSTF Revision 2****Revision Status: Active**

Revision Proposed by: NRC

Revision Description:

TSTF-427 is revised to be consistent with NEI 04-08, "Allowance for Non-Technical Specification Barrier Degradation on Supported System Operability (TSTF-427)." A discussion of barriers significant to Large Early Release (i.e., containment bypass events) and external events that was added to NEI 04-08 is added to the TSTF-427 justification and a reference to barriers significant to Large Early Release and external events is added to the Bases. Also, the list of events in the justification is revised to be consistent with the list of events in the Bases.

**TSTF Review Information**

TSTF Received Date: 07-Apr-06

Date Distributed for Review 07-Apr-06

OG Review Completed:  BWO  WOG  CEOG  BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved

Date: 01-May-06

**NRC Review Information**

NRC Received Date: 03-May-06

03-May-06

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**TSTF Revision 2****Revision Status: Active**

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**Affected Technical Specifications**

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LCO 3.0.9	LCO Applicability
	Change Description: New
LCO 3.0.9 Bases	LCO Applicability
	Change Description: New

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*03-May-06*

## **1.0 Description**

A new LCO Applicability rule, LCO 3.0.9, is added to the ISTS NUREGs to address barriers which cannot perform their related support function for Technical Specification systems. LCO 3.0.9 allows barriers to be not able to perform their related support function for up to 30 days before declaring the supported system inoperable.

## **2.0 Proposed Change**

The proposed change adds a new LCO Applicability requirement, LCO 3.0.9, and its associated Bases, to address barriers which cannot perform their related support function for Technical Specification systems.

## **3.0 Background**

Risk-Informed Technical Specifications Task Force (RITSTF) Initiative 7a addresses the effect of barriers which cannot perform their related support function on systems governed by Technical Specifications. This Initiative provides for a limited time in which Technical Specification related systems rendered inoperable by barriers which cannot perform their related support function may be considered OPERABLE.

Many systems require barriers in order to perform their function. For example, there are barriers to protect systems from the effects of internal flooding, such as floor plugs and retaining walls, and barriers are used to prevent steam impingement in case of a high energy line break. Barriers are used to protect systems against missiles, either internally generated or generated by external events.

If a barrier cannot perform its related support function due to some type of failure or due to intentional removal to facilitate plant operation, the supported system may be inoperable under the definition of OPERABILITY. However, the magnitude of plant risk associated with the barrier which cannot perform its related support function does not warrant declaring the supported system inoperable provided at least one train of the system is OPERABLE and the supporting barriers are capable of performing their related support functions.

Therefore, the proposed change provides a limited period of time to consider the supported system OPERABLE when the barrier is not capable of performing its related support function.

If a licensee has concluded that the inability of a barrier to perform its support function does not render a supported system governed by the Technical Specifications inoperable (see NRC Regulatory Issue Summary 2001-09, "Control of Hazard Barriers," dated April 2, 2001), the provisions of LCO 3.0.9 are not necessary as the supported system is OPERABLE.

#### **4.0 Technical Analysis**

When one or more trains or subsystems of a multiple train or subsystem Technical Specification system is made inoperable solely due to inability of one or more barriers (as described below) to perform its related support function, the supported system may be considered OPERABLE and the supported system's LCO(s) are not required to be declared not met for up to 30 days.

Barriers are defined as doors, walls, floor plugs, curbs, hatches, installed structures or components, or other devices, not explicitly described in Technical Specifications, which are designed to provide for the performance of the safety function for the Technical Specification system after the occurrence of one or more initiating events.

In determining the acceptability of this allowance, the following low frequency initiators were considered:

1. Loss of coolant accidents
2. High energy line breaks
3. Feedwater line breaks
4. Internal or external flooding
5. Turbine missile ejection accident
6. Tornados or high wind

The analysis also assumed the following conditions:

1. The use of this provision is limited, at a given time, to one train or subsystem of multiple train or subsystem systems designed to mitigate the consequences of one or more of the specified initiating events.
2. The provision may be used on more than one system at a given time, as long as at least a single train or subsystem of mitigation is preserved for the specified initiating events.
3. The provision is not applicable to barriers that protect more than one train or subsystem of a multiple train or subsystem Technical Specification system, unless the affected barriers protect against different initiating events.

The barrier which cannot perform its related support function will be evaluated and managed under the Maintenance Rule plant configuration control requirement, 10 CFR 50.65(a)(4), and the associated industry guidance (NUMARC 93-01, Revision 3). This provision is applicable whether the barrier is affected due to planned maintenance or due to a discovered condition. Should the risk assessment and risk management actions for a specific plant configuration or emergent condition not support the 30 day allowed time, the

Maintenance Rule risk management determined allowed time and actions must be implemented or the supported system's LCO be considered not met.

#### Twenty-four hour allowance for the required OPERABLE train or subsystem to be inoperable

Application of LCO 3.0.9 is dependant on the OPERABILITY of at least one train or subsystem of the supported Technical Specification system and the system's ability to mitigate the consequences of the specified initiating events. However, during the 30 day period allowed by LCO 3.0.9, there exists the possibility that the train or subsystem required to be OPERABLE will unexpectedly become inoperable. Absent any further consideration, this would likely result in both trains of a Technical Specification required system being declared inoperable (i.e., the train supported by the barriers to which LCO 3.0.9 was being applied and the emergent condition of the inoperable train). This would likely result in entering LCO 3.0.3 and a rapid plant shutdown. While this scenario is of low likelihood, it is of very high consequence to the licensee and, therefore, should be avoided unless necessary to avoid an actual plant risk. As a result, LCO 3.0.9 contains a provision which addresses the emergent condition of the required OPERABLE train or subsystem becoming inoperable while LCO 3.0.9 is being used. LCO 3.0.9 provides 24 hours to either restore the inoperable train or subsystem or to cease relying on the provisions of LCO 3.0.9 to consider the train or subsystem supported by the affected barrier(s) OPERABLE. This 24 hour period is not based on a generic risk evaluation, as it would be difficult to perform such an analysis in a generic fashion. Rather, plant risk during this 24 hour allowance is managed using the contemporaneous risk assessment and management required by 10 CFR 50.65(a)(4) and recognizes the unquantified advantage to plant safety of avoiding a plant shutdown with the associated transition risk.

#### Risk impact of 30 day allowance for barriers

In order to estimate the risk impact of conditions created by a barrier which cannot perform its related support function, the following simplified risk analysis is provided. This analysis is intended to demonstrate the risk impact of a single affected barrier (within the scope defined above), for a single initiator from the above definition. Its purpose is to show that conditions created by an affected barrier produce small risk impacts within the range of other maintenance activities carried out under 10 CFR 50.65(a)(4), and that the 30 day limit for restoration of the barrier is appropriate.

This analysis also demonstrates that use of this provision for more than one train or subsystem of a multiple train or subsystem supported Technical Specification system is appropriate provided that the affected barriers protect against different categories of initiating events. Multiple, independent categories of initiating events are not assumed to occur simultaneously.



An appropriate value for the allowed time,  $T_c$ , can be determined by an expression for the incremental core damage probability (ICDP) that would be attributed to the affected barrier during power operation. This involves the probability of the appropriate initiating event occurring during the allowed 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 occurs, which causes the failure of one train of a safety injection system.

This determination will consider three different parameters:

1. The length of time the affected barrier is unavailable, or the allowed time,  $T_c$  (hours),
2. The initiating event (frequency) for which the affected barrier is designed to mitigate,  $IE_i$  (per year), and
3. The importance (to core damage frequency, CDF) of the Technical Specification equipment (train, subsystem, or component) for which the affected barrier is designed to protect.

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

$$\frac{T_c}{8766}$$

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 affected barrier to account for only the time when the initiating event could damage the protected Technical Specification train, subsystem, or component. Thus, the second parameter, which will account for the change in CDF, is estimated as:

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

The third parameter is the risk achievement worth (RAW) for the protected Technical Specification equipment (train, subsystem, or component). This parameter will account for the increase in CDF as a result of the initiating event occurring while the barrier cannot perform its related support function .

Therefore, the  $\Delta$ CDP or the Incremental Core Damage Probability (ICDP) can be estimated as follows:

$$ICDP = \left[ \frac{T_c}{8766} \times \frac{IE_i}{IE_T} \right] \times [(RAW_j \times CDF_{base}) - CDF_{base}]$$

where  $RAW_j$  is the risk achievement worth for the Technical Specification equipment (train, subsystem, or component) that normally would be protected from the effect of the initiating event (with frequency  $IE_i$ ) by the affected barrier.

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

$$T_c = \frac{ICDP \times 8766}{\frac{IE_i}{IE_T} \times [(RAW_j \times CDF_{base}) - CDF_{base}]}$$

Regarding the initiating event frequency,  $IE_i$ :

The relevant initiating events consist of floods (internal and external), high energy line breaks (HELBs), feedwater line breaks, small, medium, and large loss of coolant accidents (LOCAs), tornados, and turbine missiles. Initiating event frequencies for most of these are provided in NUREG/CR-5750, "A Review of Rates of Initiating Events at U.S. Nuclear Power Plants: 1987 – 1995," February 1999. For the initiating event frequencies of turbine missiles, tornados and external flooding other sources were required.

A turbine missile frequency of  $1.64E-4$  per year is provided in EPRI, NSAC-60, June 1984, "A Probabilistic Risk Assessment of Oconee Unit 3," Section N3.1, based on previous work by the Pacific Northwest Laboratories.

This same EPRI reference provides an analysis of external flooding events. Various dam failure references are cited, with a final bounding value of  $2.5E-5$  per year. These values are consistent with, or bound, other studies.

An initiating event frequency for tornados of  $1.909E-04$  is used. This is the frequency for tornados of intensity F2 or greater within 125 nautical miles of Burlington, KS for the time period from 1950 through 1987 based on data from the National Severe Storms Forecast Center. Guidance from NUREG/CR-4461 was used to estimate the number of "missing" tornados based on the number of "known" tornados. This is considered a bounding frequency for US plants.

Review of the above sources provided the following mean frequencies per reactor-year, for the relevant initiators. The NUREG/CR-5750 data are taken from Table G-1, which excludes the first four months of commercial plant operation. A summary of the initiating event frequencies is provided in the table below:

Initiating Event	NUREG/CR-5750 (Table G-1 Category) or Other Reference	Mean frequency per reactor-year
Large LOCA, BWR	G7	3E-5
Large LOCA, PWR	G7	5E-6
Medium LOCA, BWR	G6	4E-5
Medium LOCA, PWR	G6	4E-5
Small pipe break	G3	5E-4
Very small LOCA/leak	G1	6.3E-3
RCP seal LOCA, PWR	G8	2.5E-3
Steam line break outside containment	K1	9.1E-3
Feedwater line break	K2	3.5E-3
Internal flooding	J1	3.5E-3
External flooding	EPRI NSAC-60	2.8E-5*
Turbine missile	EPRI NSAC-60	1.82E-4*
Tornados	See above	1.9E-4

*\*NSAC-60 values adjusted by industry average capacity factor of approximately 90% to obtain a frequency per reactor year.*

As can be seen, the frequency for steam line breaks outside containment is the bounding case for this application. This initiating event frequency is given as 9.1E-3 per reactor-year (Table G-1, functional impact category K1). Some barriers may protect against multiple initiating events, and in that case, the initiating event frequencies for the relevant initiators should be summed, and the analysis is still applicable as long as it bounds the summed frequencies, and it is verified that there are no dependencies between the summed initiators. However, this analysis demonstrates the limiting case for a single initiator.

In the event that a licensee desires to use LCO 3.0.9 for a barrier protecting against an initiating event not on the above table, but within the frequency ranges considered, this analysis is applicable for that initiator. However, should the initiating event frequency not be bounded by the frequencies given above, plant specific information must be provided for NRC approval.

Given that the initiating event occurs, several other conditions must be considered to determine the impact on core damage frequency, including break size, spatial considerations, remaining mitigation capability and recovery actions. These conditions are discussed below. The effective initiating event frequency relevant to this application, that is a high energy line break that damages nearby equipment with barriers unable to perform their related support function, is estimated as follows:

The NUREG/CR-5750 initiating event frequency is based on pipe breaks of one inch effective diameter and larger, in any steam, feedwater, or condensate line that

contains main turbine working fluid at or above atmospheric saturation conditions, and does not necessarily constitute a design basis HELB. According to EPRI TR-102266, "Pipe Failure Study Update," 85% of all generic pipe failures have an effective diameter of less than six inches. Therefore, the frequency referenced above accounts for all applicable breaks, but is dominated by small breaks, many of which would release insufficient energy to cause damage to other plant systems, even with barriers unable to perform their related support function. It is conservatively assumed that 50% of breaks would be of sufficient effective diameter to potentially affect adjacent equipment.

Another conservative assumption is that the line break consequences would always result in failure of the non-protected safety system function, when in reality, even for those breaks releasing sufficient energy to conceivably cause damage, this would be a function of spatial considerations. Therefore, it is estimated that in 50% of cases the equipment function would be lost.

The net impact of the above factors is an initiating event frequency (leading to failed protected equipment) considerably below the generic "steam line break outside containment" frequency from NUREG/CR-5750.

$$9.1E-3 \times 0.5 \text{ (break size)} \times 0.5 \text{ (spatial considerations)} = 2.28E-3$$

Thus, for the purposes of this application, the initiating event frequency is defined as  $2.3E-3$ .

It is recognized that the above reduction factors are approximate and not easily quantifiable in a generic sense. A table at the conclusion of this justification provides the results of a sensitivity analysis of the risk impact assuming the above reduction factors are not used; that is, the frequency of the equipment functional failure is assumed to equal the bounding initiating event frequency of  $9.1E-3$ .

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 application, given the  $IE_i$  noted above, the ratio  $IE_i/IE_T$  is therefore estimated to be  $2.3E-3$ .

The risk impact is a function of baseline CDF (and large early release frequency (LERF)) and the RAW value for the systems normally protected by the affected barrier. Baseline internal events CDF varies over a range of approximately  $1E-4$  to  $1E-6$  for existing plants. Baseline LERF values are generally at least an order of magnitude lower.

RAW values for equipment protected by barriers can range over a variety of values. The RAW value would generally be a component RAW for a main component (pump, valve, or other component necessary for system function) of the protected system. The maximum RAW value would be inherently limited due to the limitation of the LCO

provision to a single train for a given initiating event category. LCO 3.0.9 cannot be used for single train or subsystem systems or components (such as the refueling water storage tank), which typically have large RAW values.

Regarding mitigation, the conditions of this application stipulate that the affected barrier must be limited to one train or subsystem of a multiple train or subsystem system for a given initiating event category, so the redundant train(s) or subsystem(s) would be available. For barriers protecting risk significant components, maintenance unavailabilities would be controlled through the 10 CFR 50.65(a)(4) program (see risk management actions discussion).

LERF and incremental large early release probability (ILERP) also need to be considered. It can be conservatively assumed that the delta LERF and ILERP values resulting from the barrier unable to perform its related support function would be generally at least an order of magnitude less than the delta CDF and ICDP values, respectively. Containment bypass scenarios, such as interfacing system LOCA or steam generator tube rupture (which tend to be CDF independent) would not be uniquely affected by this application. Therefore, the delta LERF (and ILERP) would typically correspond to the delta CDF (and ICDP). However, if the barrier protects a system that is significant to mitigation of containment bypass events, such as interfacing systems LOCA or steam generator tube rupture, the licensee should assess the LERF impact using a qualitative, quantitative, or blended approach, i.e., the PRA model and/or other risk information. Examples of systems that may be important to LERF mitigation for containment bypass include:

- For BWRs: Main Steam Isolation Valves (MSIVs), High Pressure Coolant Injection (HPCI), Reactor Core Isolation Cooling (RCIC), Isolation Condenser, and Low Pressure ECCS.
- For PWRs: MSIVs, Power Operated Relief Valves (PORVs), Auxiliary Feedwater (AFW), High Pressure Injection (HPI), Secondary Side Heat Removal, Steam Generator Isolation

If a quantitative assessment of the LERF impact cannot be made, the use of LCO 3.0.9 at a given time should be limited to a single barrier protecting a system that is significant to mitigation of containment bypass events.

The following tables demonstrate the ICDP and ILERP value when  $T_C$  is set to 30 days (720 hours), for a range of RAW values, at various baseline CDFs, with the ratio  $IE_i/IE_T$  estimated to be  $2.3E-3$ .

Baseline CDF = 1E-6

RAW	ICDP	ILERP
2	1.9E-10	1.9E-11
10	1.7E-9	1.7E-10
50	9.3E-9	9.3E-10
100	1.9E-8	1.9E-9

Baseline CDF = 1E-5

RAW	ICDP	ILERP
2	1.9E-9	1.9E-10
10	1.7E-8	1.7E-9
50	9.3E-8	9.3E-9
100	1.9E-7	1.9E-8

Baseline CDF = 1E-4

RAW	ICDP	ILERP
2	1.9E-8	1.9E-9
10	1.7E-7	1.7E-8
50	9.3E-7	9.3E-8
100	1.9E-6	1.9E-7

The following tables show the result of the sensitivity analysis conservatively assuming all initiating events result in the failure of the primary function of the equipment protected by the affected barrier (see discussion in previous section):

Baseline CDF = 1E-6

RAW	ICDP	ILERP
2	7.5E-10	7.5E-11
10	6.7E-09	6.7E-10
50	3.7E-08	3.7E-09
100	7.4E-08	7.4E-09

Baseline CDF = 1E-5

RAW	ICDP	ILERP
2	7.5E-09	7.5E-10
10	6.7E-08	6.7E-09
50	3.7E-07	3.7E-08
100	7.4E-07	7.4E-08

Baseline CDF = 1E-4

RAW	ICDP	ILERP
2	7.5E-08	7.5E-09
10	6.7E-07	6.7E-08
50	3.7E-06	3.7E-07
100	7.4E-06	7.4E-07

Comparison with the Maintenance Rule, 10 CFR 50.65 (a)(4) guidance

NRC Regulatory Guide 1.182, "Guidance for Implementation of 10 CFR 50.65(a)(4)," provides the following table of ICDP values and risk management actions:

*ICDP and ILERP, for a specific planned configuration, may be considered as follows with respect to establishing risk management actions:*

ICDP		ILERP
$> 10^{-5}$	- configuration should not normally be entered voluntarily	$> 10^{-6}$
$10^{-6} - 10^{-5}$	- assess non-quantifiable factors - establish risk management actions	$10^{-7} - 10^{-6}$
$< 10^{-6}$	- normal work controls	$< 10^{-7}$

Conclusion:

These results justify the use of the 30 day delay time for the conditions created by a barrier unable to perform its related support function for a single train or subsystem of a multiple train or subsystem Technical Specification system or systems used to mitigate the listed initiating events or for more than one train or subsystem of a multiple train or subsystem Technical Specification system or systems provided the barriers for each train or subsystem are affected by a different category of initiating event. The ICDP and ILERP values for the range of CDF and RAW values from the above tables are still within the "normal work controls" range for all but the most limiting (i.e., most conservative) case of RAW=100 and baseline CDF=1E-4, and even then, the values are just above the thresholds for establishment of risk management actions. Risk management actions for the above sensitivity study case also remain within the range of "establish risk management actions" range of the NUMARC 93-01 table, even for large RAW values.

It is recognized that the above values are calculated using the internal events PRA. Consideration should also be given to the CDF and LERF contribution from external events. Since these metrics are not quantified, or integrated with internal events at many plants, it is reasonable to provide some margin to account for their contribution. If the barrier(s) in question protects against an external event (e.g., tornado, external flood, etc.) that is not modeled in the PRA, the use of LCO 3.0.9 at a given time should

be limited to a single barrier protecting against such an unmodeled external initiating event.

## **5.0 Regulatory Analysis**

### **5.1 No Significant Hazards Consideration**

The TSTF has evaluated whether or not a significant hazards consideration is involved with the proposed generic change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of Amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

Barriers are not an initiator to any accident previously evaluated. The probability of an accident previously evaluated is not significantly increased. Barriers support the operation of equipment assumed to mitigate the effects of accidents previously evaluated. The proposed relaxation may only be applied to a single train or subsystem of a multiple train or subsystem Technical Specification system at a given time for a given category of initiating event, or to multiple trains or subsystems of a multiple train or subsystem Technical Specification system provided the affected barriers protect against different categories of initiating events. Therefore, for any given category of initiating event, the ability to perform the assumed safety function is preserved. The consequences of an accident occurring during the time allowed when barriers are not capable of performing their related support function are no different from the consequences of the same accident while relying on the Actions of the supported Technical Specification systems.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

No new or different accidents result from using the proposed change. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or eliminate any existing requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.



Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

The proposed change allows for a limited period of time in which barriers may be unable to perform their related support function without declaring the supported systems inoperable. A risk analysis has shown that this provision will not have a significant effect on plant risk. In addition, regulatory requirements in 10 CFR 50.65(a)(4) require risk assessment and risk management, which will ensure that plant risk is not significantly increased.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the TSTF concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

## **5.2 Applicable Regulatory Requirements/Criteria**

The proposed change does not change existing requirements for systems used to meet regulatory requirements to be OPERABLE, except that a limited period of time is allowed for a barrier which cannot perform its related support function without considering the supported system inoperable. The barrier may only affect one train or subsystem of one or more multiple train or subsystem Technical Specification systems or for more than one train or subsystem of one or more multiple train or subsystem Technical Specification systems provided each train or subsystem is affected by a different initiating event category. Therefore, the proposed change provides a limited exception to the single failure criterion, consistent with that allowed by Completion Times in the Technical Specifications.

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

## **6.0 Environmental Consideration**

A review has determined that the proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

## **7.0 References**

1. Regulatory Information Summary 2001-09, "Control of Hazard Barriers," dated April 2, 2001.

**INSERT 1 (PWRs)**

LCO 3.0.9 When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events.

If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within 24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s).

At the end of the specified period, the required barriers must be able to perform their related support function(s) or the supported system LCO(s) shall be declared not met.

**INSERT 1 (BWRs)**

LCO 3.0.9 When one or more required barriers are unable to perform their related support function(s), any supported system LCO(s) are not required to be declared not met solely for this reason for up to 30 days provided that at least one train or subsystem of the supported system is OPERABLE and supported by barriers capable of providing their related support function(s), and risk is assessed and managed. This specification may be concurrently applied to more than one train or subsystem of a multiple train or subsystem supported system provided at least one train or subsystem of the supported system is OPERABLE and the barriers supporting each of these trains or subsystems provide their related support function(s) for different categories of initiating events.

[For the purposes of this specification, the [High Pressure Coolant Injection / High Pressure Core Spray] system, the [Reactor Core Isolation Cooling] system, and the [Automatic Depressurization System] are considered independent subsystems of a single system.]

If the required OPERABLE train or subsystem becomes inoperable while this specification is in use, it must be restored to OPERABLE status within

24 hours or the provisions of this specification cannot be applied to the trains or subsystems supported by the barriers that cannot perform their related support function(s).

At the end of the specified period, the required barriers must be able to perform their related support function(s) or the supported system LCO(s) shall be declared not met.

### **INSERT 2 (PWRs)**

LCO 3.0.9 LCO 3.0.9 establishes conditions under which systems described in the Technical Specifications are considered to remain OPERABLE when required barriers are not capable of providing their related support function(s).

Barriers are doors, walls, floor plugs, curbs, hatches, installed structures or components, or other devices, not explicitly described in Technical Specifications, that support the performance of the safety function of systems described in the Technical Specifications. This LCO states that the supported system is not considered to be inoperable solely due to required barriers not capable of performing their related support function(s) under the described conditions. LCO 3.0.9 allows 30 days before declaring the supported system(s) inoperable and the LCO(s) associated with the supported system(s) not met. A maximum time is placed on each use of this allowance to ensure that as required barriers are found or are otherwise made unavailable, they are restored. However, the allowable duration may be less than the specified maximum time based on the risk assessment.

If the allowed time expires and the barriers are unable to perform their related support function(s), the supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

This provision does not apply to barriers which support ventilation systems or to fire barriers. The Technical Specifications for ventilation systems provide specific Conditions for inoperable barriers. Fire barriers are addressed by other regulatory requirements and associated plant programs. This provision does not apply to barriers which are not required to support system OPERABILITY (see NRC Regulatory Issue Summary 2001-09, "Control of Hazard Barriers," dated April 2, 2001).

The provisions of LCO 3.0.9 are justified because of the low risk associated with required barriers not being capable of performing their

related support function. This provision is based on consideration of the following initiating event categories:

----- Reviewer's Note -----

LCO 3.0.9 may be expanded to other initiating event categories provided plant-specific analysis demonstrates that the frequency of the additional initiating events is bounded by the generic analysis or if plant-specific approval is obtained from the NRC.

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- Loss of coolant accidents;
- High energy line breaks;
- Feedwater line breaks;
- Internal flooding;
- External flooding;
- Turbine missile ejection; and
- Tornado or high wind.

The risk impact of the barriers which cannot perform their related support function(s) must be addressed pursuant to the risk assessment and management provision of the Maintenance Rule, 10 CFR 50.65 (a)(4), and the associated implementation guidance, Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This guidance provides for the consideration of dynamic plant configuration issues, emergent conditions, and other aspects pertinent to plant operation with the barriers unable to perform their related support function(s). These considerations may result in risk management and other compensatory actions being required during the period that barriers are unable to perform their related support function(s).

LCO 3.0.9 may be applied to one or more trains or subsystems of a system supported by barriers that cannot provide their related support function(s), provided that risk is assessed and managed (including consideration of the effects on Large Early Release and from external events). If applied concurrently to more than one train or subsystem of a multiple train or subsystem supported system, the barriers supporting each of these trains or subsystems must provide their related support function(s) for different categories of initiating events. For example, LCO 3.0.9 may be applied for up to 30 days for more than one train of a multiple train supported system if the affected barrier for one train protects against internal flooding and the affected barrier for the other train protects against tornado missiles. In this example, the affected barrier may be the

same physical barrier but serve different protection functions for each train.

If during the time that LCO 3.0.9 is being used, the required OPERABLE train or subsystem becomes inoperable, it must be restored to OPERABLE status within 24 hours. Otherwise, the train(s) or subsystem(s) supported by barriers that cannot perform their related support function(s) must be declared inoperable and the associated LCOs declared not met. This 24 hour period provides time to respond to emergent conditions that would otherwise likely lead to entry into LCO 3.0.3 and a rapid plant shutdown, which is not justified given the low probability of an initiating event which would require the barrier(s) not capable of performing their related support function(s). During this 24 hour period, the plant risk associated with the existing conditions is assessed and managed in accordance with 10 CFR 50.65(a)(4).

## **INSERT 2 (BWRs)**

LCO 3.0.9 LCO 3.0.9 establishes conditions under which systems described in the Technical Specifications are considered to remain OPERABLE when required barriers are not capable of providing their related support function(s).

Barriers are doors, walls, floor plugs, curbs, hatches, installed structures or components, or other devices, not explicitly described in Technical Specifications, that support the performance of the safety function of systems described in the Technical Specifications. This LCO states that the supported system is not considered to be inoperable solely due to required barriers not capable of performing their related support function(s) under the described conditions. LCO 3.0.9 allows 30 days before declaring the supported system(s) inoperable and the LCO(s) associated with the supported system(s) not met. A maximum time is placed on each use of this allowance to ensure that as required barriers are found or are otherwise made unavailable, they are restored. However, the allowable duration may be less than the specified maximum time based on the risk assessment.

If the allowed time expires and the barriers are unable to perform their related support function(s), the supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

This provision does not apply to barriers which support ventilation systems or to fire barriers. The Technical Specifications for ventilation systems provide specific Conditions for inoperable barriers. Fire barriers are

addressed by other regulatory requirements and associated plant programs. This provision does not apply to barriers which are not required to support system OPERABILITY (see NRC Regulatory Issue Summary 2001-09, "Control of Hazard Barriers," dated April 2, 2001).

The provisions of LCO 3.0.9 are justified because of the low risk associated with required barriers not being capable of performing their related support function. This provision is based on consideration of the following initiating event categories:

----- Reviewer's Note -----

LCO 3.0.9 may be expanded to other initiating event categories provided plant-specific analysis demonstrates that the frequency of the additional initiating events is bounded by the generic analysis or if plant-specific approval is obtained from the NRC.

-----

- Loss of coolant accidents;
- High energy line breaks;
- Feedwater line breaks;
- Internal flooding;
- External flooding;
- Turbine missile ejection; and
- Tornado or high wind.

The risk impact of the barriers which cannot perform their related support function(s) must be addressed pursuant to the risk assessment and management provision of the Maintenance Rule, 10 CFR 50.65 (a)(4), and the associated implementation guidance, Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." Regulatory Guide 1.182 endorses the guidance in Section 11 of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." This guidance provides for the consideration of dynamic plant configuration issues, emergent conditions, and other aspects pertinent to plant operation with the barriers unable to perform their related support function(s). These considerations may result in risk management and other compensatory actions being required during the period that barriers are unable to perform their related support function(s).

LCO 3.0.9 may be applied to one or more trains or subsystems of a system supported by barriers that cannot provide their related support function(s), provided that risk is assessed and managed (including consideration of the effects on Large Early Release and from external events). If applied concurrently to more than one train or subsystem of a multiple train or subsystem supported system, the barriers supporting

each of these trains or subsystems must provide their related support function(s) for different categories of initiating events. For example, LCO 3.0.9 may be applied for up to 30 days for more than one train of a multiple train supported system if the affected barrier for one train protects against internal flooding and the affected barrier for the other train protects against tornado missiles. In this example, the affected barrier may be the same physical barrier but serve different protection functions for each train.

[The [HPCI (High Pressure Coolant Injection) / HPCS (High Pressure Core Spray)] and RCIC (Reactor Core Isolation Cooling) systems are single train systems for injecting makeup water into the reactor during an accident or transient event. The RCIC system is not a safety system, nor required to operate during a transient, therefore, it does not have to meet the single failure criterion. The [HPCI / HPCS] system provides backup in case of a RCIC system failure. The ADS (Automatic Depressurization System) and low pressure ECCS coolant injection provide the core cooling function in the event of failure of the [HPCI / HPCS] system during an accident. Thus, for the purposes of LCO 3.0.9, the [HPCI / HPCS] system, the RCIC system, and the ADS are considered independent subsystems of a single system and LCO 3.0.9 can be used on these single train systems in a manner similar to multiple train or subsystem systems.]

If during the time that LCO 3.0.9 is being used, the required OPERABLE train or subsystem becomes inoperable, it must be restored to OPERABLE status within 24 hours. Otherwise, the train(s) or subsystem(s) supported by barriers that cannot perform their related support function(s) must be declared inoperable and the associated LCOs declared not met. This 24 hour period provides time to respond to emergent conditions that would otherwise likely lead to entry into LCO 3.0.3 and a rapid plant shutdown, which is not justified given the low probability of an initiating event which would require the barrier(s) not capable of performing their related support function(s). During this 24 hour period, the plant risk associated with the existing conditions is assessed and managed in accordance with 10 CFR 50.65(a)(4).



### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, ~~and LCO 3.0.8,~~ and LCO 3.0.9.

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LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

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LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 3 within 7 hours,
- b. MODE 4 within 13 hours, and
- c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

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LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;
- b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

3.0 LCO Applicability

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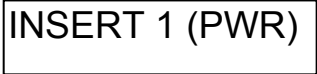
- LCO 3.0.8            When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:
- a.    the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
  - b.    the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

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INSERT 1 (PWR)



## B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

### BASES

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LCOs	LCO 3.0.1 through LCO 3.0.8-9 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ul style="list-style-type: none"><li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification and</li><li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li></ul> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.</p> <p>Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.</p>

BASES

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LCO 3.0.8 (continued)

support function(s) and appropriate compensatory measures are specified in the snubber requirements, which are located outside of the Technical Specifications (TS) under licensee control. The snubber requirements do not meet the criteria in 10 CFR 50.36(c)(2)(ii), and, as such, are appropriate for control by the licensee.

If the allowed time expires and the snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

LCO 3.0.8.a applies when one or more snubbers are not capable of providing their associated support function(s) to a single train or subsystem of a multiple train or subsystem supported system or to a single train or subsystem supported system. LCO 3.0.8.a allows 72 hours to restore the snubber(s) before declaring the supported system inoperable. The 72 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant train of the supported system.

LCO 3.0.8.b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one train or subsystem of a multiple train or subsystem supported system. LCO 3.0.8.b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function.

LCO 3.0.8 requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 3.0.8 should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.

### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, ~~and LCO 3.0.8,~~ and LCO 3.0.9.

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LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required unless otherwise stated.

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LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 3 within 7 hours,
- b. MODE 4 within 13 hours, and
- c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

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LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;
- b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or

3.0 LCO Applicability

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LCO 3.0.8            When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

- a.    the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
- b.    the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

INSERT 1 (PWR)



## B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

### BASES

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LCOs	LCO 3.0.1 through LCO 3.0.8-9 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ul style="list-style-type: none"><li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification and</li><li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li></ul> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.</p> <p>Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.</p>

BASES

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LCO 3.0.8 (continued)

If the allowed time expires and the snubber(s) are unable to perform their associated support function(s), the affected supported system's LCO(s) must be declared not met and the Conditions and Required Actions entered in accordance with LCO 3.0.2.

LCO 3.0.8.a applies when one or more snubbers are not capable of providing their associated support function(s) to a single train or subsystem of a multiple train or subsystem supported system or to a single train or subsystem supported system. LCO 3.0.8.a allows 72 hours to restore the snubber(s) before declaring the supported system inoperable. The 72 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant train of the supported system.

LCO 3.0.8.b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one train or subsystem of a multiple train or subsystem supported system. LCO 3.0.8.b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function.

LCO 3.0.8 requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 3.0.8 should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.





### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, ~~and LCO 3.0.8,~~ and LCO 3.0.9.

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LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

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LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 3 within 7 hours,
- b. [MODE 4 within 13] hours, and
- c. MODE 5 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, 3, and 4.

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LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;
  - b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or
  - c. When an allowance is stated in the individual value, parameter, or other Specification.
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3.0 LCO Applicability

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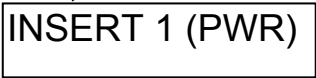
LCO 3.0.8 (continued)

- a. the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
- b. the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

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INSERT 1 (PWR)



B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs	LCO 3.0.1 through LCO 3.0.8-9 establish the general requirements applicable to all Specifications and apply at all times unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ul style="list-style-type: none"> <li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification and</li> <li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li> </ul> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.</p> <p>Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.</p>

BASES

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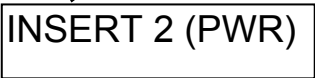
LCO 3.0.8 (continued)

inoperable. The 72 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function and due to the availability of the redundant train of the supported system.

LCO 3.0.8.b applies when one or more snubbers are not capable of providing their associated support function(s) to more than one train or subsystem of a multiple train or subsystem supported system. LCO 3.0.8.b allows 12 hours to restore the snubber(s) before declaring the supported system inoperable. The 12 hour Completion Time is reasonable based on the low probability of a seismic event concurrent with an event that would require operation of the supported system occurring while the snubber(s) are not capable of performing their associated support function.

LCO 3.0.8 requires that risk be assessed and managed. Industry and NRC guidance on the implementation of 10 CFR 50.65(a)(4) (the Maintenance Rule) does not address seismic risk. However, use of LCO 3.0.8 should be considered with respect to other plant maintenance activities, and integrated into the existing Maintenance Rule process to the extent possible so that maintenance on any unaffected train or subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.

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INSERT 2 (PWR)

3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, ~~and LCO 3.0.8,~~ and LCO 3.0.9.

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LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

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LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 2 within [7] hours,
- b. MODE 3 within 13 hours, and
- c. MODE 4 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, and 3.

-----REVIEWER'S NOTE-----  
The brackets around the time provided to reach MODE 2 allow a plant to extend the time from 7 hours to a plant specific time. Before the time can be changed, plant specific data must be provided to support the extended time.  
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LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;

LCO Applicability

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LCO 3.0.8

When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

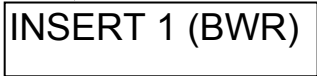
- a. the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
- b. the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

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INSERT 1 (BWR)



B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs	LCO 3.0.1 through LCO 3.0.98 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ul style="list-style-type: none"> <li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification and</li> <li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li> </ul> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.</p> <p>Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.</p>

BASES

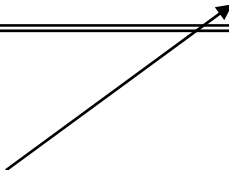
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LCO 3.0.8 (continued)

subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.

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INSERT 2 (BWR)





### 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

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LCO 3.0.1 LCOs shall be met during the MODES or other specified conditions in the Applicability, except as provided in LCO 3.0.2, LCO 3.0.7, ~~and LCO 3.0.8,~~ and LCO 3.0.9.

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LCO 3.0.2 Upon discovery of a failure to meet an LCO, the Required Actions of the associated Conditions shall be met, except as provided in LCO 3.0.5 and LCO 3.0.6.

If the LCO is met or is no longer applicable prior to expiration of the specified Completion Time(s), completion of the Required Action(s) is not required, unless otherwise stated.

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LCO 3.0.3 When an LCO is not met and the associated ACTIONS are not met, an associated ACTION is not provided, or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Action shall be initiated within 1 hour to place the unit, as applicable, in:

- a. MODE 2 within 7 hours,
- b. MODE 3 within 13 hours, and
- c. MODE 4 within 37 hours.

Exceptions to this Specification are stated in the individual Specifications.

Where corrective measures are completed that permit operation in accordance with the LCO or ACTIONS, completion of the actions required by LCO 3.0.3 is not required.

LCO 3.0.3 is only applicable in MODES 1, 2, and 3.

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LCO 3.0.4 When an LCO is not met, entry into a MODE or other specified condition in the Applicability shall only be made:

- a. When the associated ACTIONS to be entered permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time;
- b. After performance of a risk assessment addressing inoperable systems and components, consideration of the results, determination of the acceptability of entering the MODE or other specified condition in the Applicability, and establishment of risk management actions, if appropriate; exceptions to this Specification are stated in the individual Specifications, or
- c. When an allowance is stated in the individual value, parameter, or other Specification.

LCO Applicability

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LCO 3.0.8

When one or more required snubbers are unable to perform their associated support function(s), any affected supported LCO(s) are not required to be declared not met solely for this reason if risk is assessed and managed, and:

- a. the snubbers not able to perform their associated support function(s) are associated with only one train or subsystem of a multiple train or subsystem supported system or are associated with a single train or subsystem supported system and are able to perform their associated support function within 72 hours; or
- b. the snubbers not able to perform their associated support function(s) are associated with more than one train or subsystem of a multiple train or subsystem supported system and are able to perform their associated support function within 12 hours.

At the end of the specified period the required snubbers must be able to perform their associated support function(s), or the affected supported system LCO(s) shall be declared not met.

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INSERT 1 (BWR)

B 3.0 LIMITING CONDITION FOR OPERATION (LCO) APPLICABILITY

BASES

LCOs	LCO 3.0.1 through LCO 3.0.8-9 establish the general requirements applicable to all Specifications and apply at all times, unless otherwise stated.
LCO 3.0.1	LCO 3.0.1 establishes the Applicability statement within each individual Specification as the requirement for when the LCO is required to be met (i.e., when the unit is in the MODES or other specified conditions of the Applicability statement of each Specification).
LCO 3.0.2	<p>LCO 3.0.2 establishes that upon discovery of a failure to meet an LCO, the associated ACTIONS shall be met. The Completion Time of each Required Action for an ACTIONS Condition is applicable from the point in time that an ACTIONS Condition is entered. The Required Actions establish those remedial measures that must be taken within specified Completion Times when the requirements of an LCO are not met. This Specification establishes that:</p> <ol style="list-style-type: none"> <li>a. Completion of the Required Actions within the specified Completion Times constitutes compliance with a Specification and</li> <li>b. Completion of the Required Actions is not required when an LCO is met within the specified Completion Time, unless otherwise specified.</li> </ol> <p>There are two basic types of Required Actions. The first type of Required Action specifies a time limit in which the LCO must be met. This time limit is the Completion Time to restore an inoperable system or component to OPERABLE status or to restore variables to within specified limits. If this type of Required Action is not completed within the specified Completion Time, a shutdown may be required to place the unit in a MODE or condition in which the Specification is not applicable. (Whether stated as a Required Action or not, correction of the entered Condition is an action that may always be considered upon entering ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.</p> <p>Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.</p>

BASES

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LCO 3.0.8 (continued)

subsystem is properly controlled, and emergent issues are properly addressed. The risk assessment need not be quantified, but may be a qualitative awareness of the vulnerability of systems and components when one or more snubbers are not able to perform their associated support function.

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INSERT 2 (BWR)

