50-482

February 06, 1986

MEMORANDUM FOR: Edward J. Butcher, Chief
Technical Specifications Coordination Branch
Division of Human Factors Technology, NRR

FROM: Kulin D. Desai, Reactor Engineer
Technical Specifications Coordination Branch
Division of Human Factors Technology, NRR

SUBJECT: SUMMARY OF MEETING WITH AIF SUBCOMMITTEE ON TECHNICAL SPECIFICATIONS IMPROVEMENT - WOLF CREEK TS SPLIT

The NRC staff and the AIF TS subcommittee members met on January 28, 1986 in Bethesda, MD. to discuss Westinghouse - Wolf Creek Technical Specifications split using AIF/TSIP proposed criteria.

The purpose of this working session was to:

1. determine validity and usefulness of the criteria;

2. identify areas of agreement and disagreement of Wolf Creek TS split;

3. discuss the differences and resolve these issues; and

4. identify any defects within the criteria for improvement or clarity.

Our meeting was constructive and helpful to all parties. The overall conclusion was that the proposed criteria work very well, however, criterion #2 and #3 need further clarity to be completely effective.

The Wolf Creek Technical Specifications have 133 Limiting Conditions for Operation (LCO). Our Wolf Creek TS split comparison identified 34 LCO as disagreements between the staff and the AIF. These 34 LCO were discussed in detail for resolution. Out of these 34 LCO, we resolved the disagreement for 22 during this working session. The remaining 12 LCO represent the differences due to criteria definition and interpretation, surveillance assurance requirements and surveillance of instrumentation related issues as listed below:

1. Criteria Definional Differences

LCO 3.1.1.3 Moderator Temperature coefficient (MTC)

LCO 3.2.2 Heat Flux Hot Channel Factor - FQ(Z)

LCO 3.2.3 RCS Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor

LCO 3.6.1.2 Containment Leakage

2. Surveillance Assurance Requirements (LCO that seem to be in existence only to assure appropriate surveillance)

LCO 3.4.5 Steam Generators (Inservice Inspection of Steam Generator Tubes)

LCO 3.4.10 Structural Integrity (Inservice Inspection of ASME Code Class 1, 2 and 3 components including each reactor coolant pump flywheel and inservice testing of ASME Code Class 1, 2 and 3 pumps and valves)

LCO 3.7.8 Snubbers (Inservice Visual Inspections of Snubbers)

3. Surveillance Instrumentation (These requirements can be combined with other LCO as surveillance requirements)

LCO 3.1.3.2 Control Rod Position Indication Systems - Operating (Digital and Demand)

LCO 3.1.3.3 Control Rod Position Indication Systems - Shutdown (Digital only - for Control Rods not fully inserted)

LCO 3.1.3.4 Rod Drop Time

LCO 3.7.12 Area Temperature Monitoring

4.

LCO 3.4.9.1 RCS - Pressure/Temperature Limits (Reactor Vessel material Surveillance Program required by 10 CFR 50, Appendix H and ASME Section III Appendix G)

This meeting was our first attempt for the criteria application to the Wolf Creek TS. It is believed that the 12 remaining areas of disagreement can be resolved at future meetings between the NRC and the AIF.

The staff and the AIF TS subcommittee members are in the process of preparing a similar TS split for Limerick - a BWR plant. We plan to meet on February 26, 1986 to discuss the result of this work.

/S/ K. D. Desai
Kulin D. Desai, Reactor Engineer
Technical Specifications Coordination Branch
Division of Human Factors Technology, NRR

Enclosures:
1. List of Attendees
2. Proposed Criteria
3. Staff Wolf Creek TS Split
4. AIF Wolf Creek TS Split

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TSCB Members

Distribution
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TSCB:DHFT:NRR
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02/6/86

ENCLOSURE 1

Janu. 28 '86

NRC - AIF meeting.

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ENCLOSURE 2

ATTACHMENT 1

Criterion 1: An installed system that is used to detect, by monitors in the control room a significant abnormal degradation of the reactor coolant pressure boundary, or:

DISCUSSION: A basic concept in the protection of the public health and safety is the prevention of accidents. Systems are installed to detect significant abnormal degradation of the reactor coolant pressure boundary so as to allow operator actions to either correct the condition or to shutdown the plant safely, thus reducing the likelihood of a loss of coolant accident.

This criterion is intended to ensure that Technical Specifications control those systems that detect excessive reactor coolant system leakage. Two specific examples of systems which are selected using Criterion 1 are:

Secondary System Radiation Monitors

Reactor Building Sump Level Instrumentation

Criterion 2: A process variable that is an initial condition of the Design Basis Accident Analysis, or;

DISCUSSION: Another basic concept in the protection of the public health and safety is that the plant shall be operated within the bounds of the initial conditions assumed in the existing Design Basis Accident (DBA) analysis. These analyses consist of postulated events, analyzed in the Final Safety Analysis Report (FSAR), for which a structure, system, or component must meet specified functional goals. These analyses are contained in Chapters 6 and 15 of the FSAR (or equivalent chapters) and are identified as Condition II, III, or IV events (ANSI N 18.2) (or equivalent) that either assume the failure of or present a challenge to the integrity of a fission product barrier.

Process variables are parameters for which specific values or ranges of values have been chosen as reference bounds in DBA analyses and which are monitored and controlled in actual operation such that process values remain within the analysis bounds.

The purpose of this criterion is to capture those process variables that have initial values assumed in the DBA analyses, which are monitored and controlled. So long as these variables are maintained within the established values, risk to the public safety is presumed to be acceptably low.

Implicit in this criterion is the associated installed control room instrumentation that monitors and/or controls the selected process variable. Two specific examples of process variables selected using Criterion 2 are:

Moveable Group Assembly Rod Insertion Limits

Reactor Coolant System Pressure Limits

Criterion 3: A structure, system, or component that is part of the primary success path of a safety sequence analysis and functions or actuates to mitigate a Design Basis Accident.

DISCUSSION: A third concept in the protection of the public health and safety is that in the event that a postulated DBA should occur, structures, systems, and components are available to function or to actuate in order to mitigate the consequence of the DBA. Safety sequence analyses or equivalent have been performed in recent years and provide a method of presenting the plant response to an accident.

A safety sequence analysis is a systematic examination of the actions required to mitigate the consequences of events considered in the plant's DBA analysis, as presented in Chapters 6 and 15 of the plant's Final Safety Analysis Report. Such a safety sequence analysis considers all applicable events, whether explicitly or implicitly presented. The primary success path of a safety sequence analysis consists of those actions assumed in the design basis accident analysis which limit the consequences of the events to within the appropriate acceptance criteria.

It is the intent of this criterion to capture into Technical Specifications only those structures, systems, components that are part of the primary success path of a safety sequence analysis. Implicit in this criterion are those support systems that are necessary for items in the primary success path to successfully function. The primary success path is equivalent for each DBA to the combinations and sequences of equipment assumed to operate when responding to the event which results in acceptable plant accident response (including consideration of the single failure criterion).

Two specific examples of structures, systems, and components which are selected using Criterion 3 are:

Reactor Trip System Instrumentation

Primary System Safety Valves

ENCLOSURE 3

DRAFT

TEST APPLICATION OF TSIP

TECHNICAL SPECIFICATION SELECTION CRITERIA

TEST APPLICATION OF TSIP TECHNICAL SPECIFICATION SELECTION CRITERIA TO WOLF CREEK TECHNICAL SPECIFICATIONS

Background: On September 30, 1985, the Final Report of the Technical Specification Improvement Project was forwarded to Harold Denton. This report discussed the problems associated with Technical Specifications and included conclusions and recommendations of TSIP. One of the three root problems was lack of well defined criteria for what requirements should be included in Technical Specifications. TSIP recommended that a Commission Policy Statement be prepared to articulate the scope and purpose of Technical Specifications. This Policy Statement would include specific criteria to identify Technical Specification content. After many discussions, including meetings with the AIF and the TSIP Advisory Group, criteria for selecting Technical Specifications were derived and recommended. These criteria would be used on a voluntary basis by licensees to determine which requirements would remain in Technical Specifications and which requirements would be placed in another controlled document. Detailed discussions on the criteria can be found in the TSIP Final Report, Section 2.2.1, and in the AIF Technical Specification Improvement Report of October 1, 1985 (letter to H. Denton from M. Edelman dated October 8, 1985). It was determined that one of the next necessary steps was to apply the criteria. This report describes this first application of the recommended criteria.

Description: The purpose of this trial application is to verify that the criteria work as described in the TSIP report and, if not, to make recommendations as to how the criteria should be altered or supplemented. This application is also intended to provide the Technical Specification Coordination Branch (TSCB) with detailed results for their consideration and to serve as a basis for continuing dialogue with the industry and NRC staff. Verification of the success of the criteria is based on their practicality and clarity for application and a review of whether the final Technical Specifications capture those systems, components, and variables most important to safety. This determination is obviously based on judgement. In addition, special attention was paid to those LCOs that would be removed from Technical Specifications and have Action Statement that limit reactor power in some way, including shutdown. Each of these specifications was specifically noted and recommendations made on where they should go.

This trial application is made on one PWR and one BWR set of Technical Specifications. The PWR used was Wolf Creek. The BWR used was Limerick. The criteria are shown in Attachment 1 with supporting discussion (AIF report).

Included in this report are detailed results, conclusions and recommendations. These conclusions and recommendations, especially the recommendations, should be considered preliminary. It is hoped that they will serve as a point of departure for the TSCB to continue dialogue with the industry and the NRC staff.

Results: Enclosures 1 and 2 provide the detailed results of the trial application. Enclosure 1 is the application of the criteria to the Wolf Creek Technical Specifications. Enclosure 2 covers the Limerick application. Each Limiting Condition for Operation (LCO) in Section 3 of each plant's Technical Specifications is listed individually with its purpose(s). A column is then provided to indicate whether the specification remains in the tech-specs, or not, and if it remains, which criterion apply. The next column states whether or not the associated ACTION STATEMENT for the LCO requires a reactor shutdown after some time, or limits reactor power in some way. The last column provides comments and is intended to address:

1. Interpretations of or difficulties with the criteria.
2. Appropriate comments on the LCO importance (subjective criteria)
3. Weaknesses in the BASES.

Enclosure 3 provides a "count" of limiting conditions of operation (LCO) for each set of Technical Specifications to provide a perspective of how many stay and leave following the application of the criteria. Also indicated are how many LCOs have a reactor power limitation and how many do not. It is estimated that these criteria would allow placing about 40% of the current LCOs in other controlled documents.

Enclosure 4 is a listing, or potpourri, of insights and comments that should be used to supplement the details of enclosures 1 and 2, and this criteria application in general.

Enclosure 5 is a discussion and list of the Limiting Conditions of Operation (LCOs) that would leave the Technical Specifications, but have a power limitation of some sort.

Conclusions:

1. The proposed criteria, in general, provide on effective means to determine which Limiting Conditions for Operation (LCO)s) should remain in the Technical Specifications. With some exceptions, which are rather minor, the remaining LCOs appear to address those systems and components which are of immediate importance to the public health and safety. This conclusion is based on judgement regarding what systems are necessary to shutdown the reactor, cool the reactor, and provide containment. (To the extent possible, risk assessment insights were considered - Core melt or core damage risk and public health risk).

2. Some rather unimportant (from a risk perspective) LCO's remain in the Technical Specifications. These include safety analysis initial conditions and non-reactor related requirements such as rad-waste tank limits.

3. Several minor problems with the criteria and the supplementary information, such as definitions, were encountered:

a. The term, "Design Basis Accident (DBA)" is not precise enough, causes confusion, and in some respects is wrong. The AIF report describes a DBA as a hypothetical event that is not expected to occur (pg. 12). Yet, the definition of DBA on pg. 14 includes Condition II events which are anticipated events analyzed in the FSAR.

b. The criteria do not cover the normal decay heat removal function provided by the residual heat removal system.

c. The criteria do not clearly cover the reactor vessel pressure-temperature limits during all modes of operation (see g below).

d. Criterion 1 refers to systems to detect abnormal degradation of the reactor coolant pressure boundary in the control room. The "in the control room" limitation appears to be an extraneous holdover from earlier proposed criteria.

e. The term "process variable" in criterion 2 does not include, conditions, or assumptions which are important initial conditions of a Chapter 15 safety analysis. An example is the pressure interlocks on the RHR suction valves. These interlocks help limit LOCAs to those that occur inside the containment. An interfacing systems LOCA is beyond the design basis.

f. None of the criteria explicitly treat the refueling mode.

g. Low temperature overpressure protection transient analyses is not considered under Criterion 2 and Criterion 3. This analysis is not found in Chapter 6 or 15.

Recommendations:

1. This trial application, with the several problems and proposed solutions, should be considered by the TSCB and used as a basis for discussion with NRC and industry. The criteria worked reasonably well considering that this was the first real application.

2. To support the subjective criteria, which pertains only to reactor operation, Criteria 2 and 3 should only apply to reactor transients and accidents analyzed in the FSAR. This clarification would remove all "non-reactor" LCO's (rad-waste tank limits) and possibly some refueling requirements. Previous studies such as WASH-1400 have estimated the risk associated with all sources of radioactivity on a site. Studies conclude that a gross release of radioactivity can occur only if fuel melts and that, while releases involving waste storage tanks would be "troublesome" particularly to in-plant personnel, they could not result in public consequences nearly as serious as accidents involving melting of fuel in the reactor core or spent fuel pool.

3. The term Design Basis Accident should be replaced by "safety analysis," "transients and accidents," or a similar term, supplemented by the current AIF discussion of Condition II, III and IV events.

4. The discussion on Criterion 3 should make it clear that decay heat removal is a necessary part of a primary success path for core cooling, such that the Residual Heat Removal System is included in the Technical Specifications.

5. Criterion 2 discussion should be clarified such that conditions or assumptions (like the RHR interlocks) which are important bounds of the safety analysis are covered.

6. The phrase "by monitors in the control room" should be deleted from the first criterion.

7. Low temperature overpressure protection transient analyses should be considered part of the safety analysis (currently DBA) envelope, such that it is covered by Criterion 2 and Criterion 3.)

8. While the criteria have been successful in focusing on the key safety systems, the Technical Specifications, because the criteria are based on the traditional licensing approach, will have requirements that are much less important than others. It is recommended that ACTION

STATEMENT allowed outage time adjustments or flexibility be used to reflect importance rather than removing items from Technical Specifications arbitrarily or thorugh additional revisions of the criteria.

ATTACHMENT 1

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This criterion is intended to ensure that Technical Specifications control those systems that detect excessive reactor coolant system leakage. Two specific examples of systems which are selected using Criterion 1 are:

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Implicit in this criterion is the associated installed control room instrumentation that monitors and/or controls the selected process variable. Two specific examples of process variables selected using Criterion 2 are:

Moveable Group Assembly Rod Insertion Limits

Reactor Coolant System Pressure Limits

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DISCUSSION: A third concept in the protection of the public health and safety is that in the event that a postulated DBA should occur, structures, systems, and components are available to function or to actuate in order to mitigate the consequence of the DBA. Safety sequence analyses or equivalent have been performed in recent years and provide a method of presenting the plant response to an accident.

A safety sequence analysis is a systematic examination of the actions required to mitigate the consequences of events considered in the plant's DBA analysis, as presented in Chapters 6 and 15 of the plant's Final Safety Analysis Report. Such a safety sequence analysis considers all applicable events, whether explicitly or implicitly presented. The primary success path of a safety sequence analysis consists of those actions assumed in the design basis accident analysis which limit the consequences of the events to within the appropriate acceptance criteria.

It is the intent of this criterion to capture into Technical Specifications only those structures, systems, components that are part of the primary success path of a safety sequence analysis. Implicit in this criterion are those support systems that are necessary for items in the primary success path to successfully function. The primary success path is equivalent for each DBA to the combinations and sequences of equipment assumed to operate when responding to the event which results in acceptable plant accident response (including consideration of the single failure criterion).

Two specific examples of structures, systems, and components which are selected using Criterion 3 are:

Reactor Trip System Instrumentation

Primary System Safety Valves

ENCLOSURE (1)

TEST APPLICATION OF TSIP TECHNICAL SPECIFICATION

SELECTION CRITERIA TO WOLF CREEK TECHNICAL SPECIFICATIONS

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.1 3.1.1 3.1.1.1	REACTIVITY CONTROL SYSTEMS BORATION CONTROL Shutdown Margin Tavg >200° F	To: 1. Ensure ability to reach subcriticality from all operating conditions. 2. Ensure reactivity transients remain controllable 3. Preclude Inadvertent Criticality in shutdown. Most restrictive condition is steamline break at no load Tavg.	Yes (#2)	Yes - borate to 1.3% shutdown margin	Boration control (system-see 3.1.2) to maintain shutdown margin does not appear to be a primary success path function. The primary success path for boration would fall under ECCS only. Shutdown margin is a "process variable" controlled by the operator. This LCO appears to be redundant to 3.1.3.6, Rod Insertion Limits and less comprehensive than 3.1.3.6 (except for Modes 3 and 4).
3.1.1.2	Shutdown Margin Tavg ≤200°F	Same as above.	Yes (#2)	No - already shutdown	Same as 3.1.1.1.
3.1.1.3	Moderator Temperature Coefficient (MTC)	To maintain within accident analysis assumptions	Yes (#2)	Yes	
3.1.1.4	Minimum Temperature for Criticality	To ensure: 1. MTC is within its analyzed range. 2. The trip instrumentation is within its normal operating range. 3. The pressurizer is capable of being operable with a bubble. 4. The reactor vessel is above its minimum RT_{NDT}.	Yes (#2)	Yes	For 3.1.1.1 - 3.1.1.4: T/S imply that these specifications are all under boration control. It is not clear that they should be. The boration control relates to the action statement only.

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.1.2	BORATION SYSTEMS	Ensures that negative reactivity control is available.	-	-	Routine boration control - not emergency reactivity control. The normal capability to control reactivity with boron is not credited in the accident analysis. Therefore related requirements would leave the Technical Specifications.
3.1.2.1	Flow Path-Shutdown	Provides one operable boron addition path during shutdown.	No	No	
3.1.2.2	Flow Paths - Operating	Provides two operable boron addition paths during shutdown.	No	Yes	
3.1.2.3	Charging Pump - Shutdown	Provides one operable charging pump for boron addition during shutdown. Prevents RCS overpressure during shutdown by allowing <u>only one</u> operable pump.	No	No	Prevents RCS over-pressure during shutdown This is not DBA, so this LCO does not meet lettr of Criteria #2. However, violation of Appendix G could be a serious situation even during shutdown.
3.1.2.4	Charging Pumps - Operating	Provides two operable charging pumps for boron addition during operation.	No	Yes	Emergency boration, a primary success path for a DBA, should stay a Tech-Spec under ECCS.
3.1.2.5	Borated Water Source - Shutdown	Provides one source of borated water for boron addition during shutdown.	No	No	-

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.1.2.6	Borated Water Source - Operating	Provides two sources of borated water for boron addition during operation.	No	Yes	-
3.1.3	MOVEABLE CONTROL ASSEMBLIES				
3.1.3.1	Group Height	Ensure: 1. Proper power distribution. 2. Sufficient shutdown margin. 3. Correct rod-alignment as assumed in accident analysis.	Yes (#2)	Yes	
3.1.3.2	Position Indication systems - Operating (Digital and Demand)	To ensure control rod alignment and insertion limits.	Yes - as a surveillance for 3.1.3.1.*	Yes	
3.1.3.3	Position Indication Systems - Shutdown (Digital only - for rods not fully inserted)	To monitor rod position during shutdown	Yes - as a surveillance for 3.1.3.1.*	No	Action requires opening of reactor trip breaker. Bases do not address shutdown case.
3.1.3.4	Rod Drop Time	To ensure rod insertion rate is consistent with accident analysis assumption.	Yes - as a surveillance for 3.1.3.*	Yes	While not monitored and controlled during operation, surveillance is necessary to ensure reactor trip system can perform safety function.

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.1.3.5	Shutdown Rod Insertion Limit (modes 1 and 2)	To ensure that minimum shutdown margin is maintained.	Yes - But redundant to 3.1.1.1.*	Yes (via 3.1.3.1 Action Statement).	Bases do not address this specification specifically. Maybe should be part of group height or shutdown margin.
3.1.3.6	Control Rod Insertion Limits	To ensure: 1. Adequate shutdown margin. 2. Limit worth of postulated ejected rods. 3. Proper control rod distribution to validate channel factors in T.S. 3.2.	Yes (#2)	Yes	Bases do not provide detailed discussions on this specification, additional discussion in 3.2.
3.2	POWER DISTRIBUTION LIMITS				In reality, small deviations from these conditions could result in localized overheating and fuel damage in the event of a transient or accident; this probably would not present an immediate threat to the public safety. Also, most of these parameters are set by the core and fuel design, not by operational methods. However, these

*Discussion under Criterion #2 says that installed control room instrumentation that monitors and/or controls the selected process variable is "implicit in this criterion."

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
					conditions are an integral part of our defense-in-depth philosophy.
3.2.1	Axial Flux Difference	Ensures that axial flux difference stays within analyzed bounds for DNB.	Yes (#2)	Yes	It is difficult to understand basis of this T.S. from BASES. It does appear to be a bounding condition to ensure clad temperature and DNB criteria are not violated in DBA.
3.2.2	Heat Flux Hot Channel Factor - $F_Q(z)$	Ensures: 1. local power density and minimum DNBR are not exceeded. 2. LOCA peak clad temperature of 2200°F not exceeded.	Yes (#2)	Yes	-
3.2.3	RCS Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor.	Same as 3.2.2	Yes (#2)	Yes	-
3.2.4	Quadrant Power Tilt Ratio	Ensures power tilt in X-Y plane within bounds for DNB analysis.	Yes (#2)	Yes	-
3.2.5	DNB Parameters	Ensures that RCS pressure and temperature are within initial bounds for DNB analysis.	Yes (#2)	Yes	-
3.3	INSTRUMENTATION				

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.3.1	Reactor Trip System Instrumentation	To provide reactor trip initiation when specific parameter limits are reached.	Yes (#3)	Yes	-
3.3.2	Engineered Safety Features Actuation System Instrumentation	To provide actuation of those engineered safety features whose function is necessary to mitigate postulated LOCAs, transients and accidents.	Yes (#3)	Yes	
3.3.3.1	Radiation Monitoring for Plant Operations: 1. Containment				
	a. Atmospheric-Gaseous Radioactivity.	Provides automatic isolation of containment purge	Yes (#3)	No	Action Statement requires closing purge valves.
	b. Gaseous Radioactivity -	Monitor RCS Leakage	Yes (#1)	Yes	Provides surveillance requirements and somewhat redundant to 3.4.6.1, Leakage Detection Systems.
	c. Particulate Radioactivity	Monitor RCS Leakage	Yes (#1)	Yes	
	2. Fuel Building				
	a. Exhaust-Gaseous Radioactivity	Automatic switchover to Emergency Ventilation	Yes (#3)	No	
	b. Criticality	To monitor and alarm fuel pool radiation level.	No	No	
	3. Control Room Air Intake	Automatic switchover to Emergency Ventilation.	No	No	Although control room function is important, the criteria do not appear to cover this specification as a primary success path.
3.3.3.2	Movable Incore Detectors	To calibrate excore detectors and obtain flux maps.	No	No	
3.3.3.3	Seismic Instrumentation	To determine the magnitude of a seismic event and evaluate equipment response.	No	No	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.3.3.4	Meteorological Instrumentation	To obtain data for estimation of dose to public for routine or accidental releases.	No	No	
3.3.3.5	Remote Shutdown Instrumentation	To ensure ability to achieve and maintain HOT SHUTDOWN from outside the control room and to ensure that a fire will not preclude achieving safe shutdown.	No	Yes	This instrumentation is not part of a primary success path for a DBA (criteria 3). Almost [illegible] of this instrumentation is on the auxiliary shutdown panel.
3.3.3.6	Accident Monitoring Instrumentation	To provide sufficient information following an accident. (Consistant with Reg. Guide 1.97 and NUREG-0737).	No (see comment)	Yes	Instruments that "key" manual actions which are on primary success paths for a DBA would remain.
3.3.3.7	Chlorine Detection Systems	To ensure capability to detect and initiate actions in the event of an accidential chlorine release.	No	No	
3.3.3.8	Fire Detection Instrumentation	To provide detection of fires and actuation of suppression systems.	No	No	
3.3.3.9	Loose-Part Detection System	To provide capability to detect loose metallic parts in the reactor coolant system.	No	No	
3.3.3.10	Radioactive Liquid Effluent Monitoring Instrumentation	To monitor and control, as applicable, the release of radioactive material in liquid effluents during actual or potential releases of liquid effluents.	No	No	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.3.3.11	Radioactive Gaseous Effluent Monitoring Instrumentation	To monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases of gaseous effluents.	No	No	
3.3.4	Turbine Overspeed Protection	To ensure that turbine overspeed protection and the turbine speed control valves will protect the turbine from overspeed.	No	No (however, inoperable trip requires isolating turbine)	Turbine's orientation minimizes potential for missile damage. The BASES do not indicate that this feature is a primary success path. Further, postulated missiles are not a DBA.
3.4	REACTOR COOLANT SYSTEM				
3.4.1	Reactor Coolant Loops and Coolant Circulation	Transport reactor coolant and heat to steam generators. The number of loops in operation is an assumption, or condition, in the accident analysis (modes 1, 2, and 3). In modes 4 and 5, the number of loops required is based on the need to remove decay heat assuming a single failure.	-	-	-
3.4.1.1	Startup and Power Operation (modes 1 and 2)		Yes (#2, #3)	Yes	
3.4.1.2	Hot Standby (mode 3)		Yes (#2, #3)	No	Action statement requires going to Hot Shutdown.

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.4.1.3	Hot Shutdown (mode 4)		No	No	Action statement requires going to Cold Shutdown. Although RCS Loops are necessary for removing decay heat in Modes 4 and 5, the criteria would not explicitly kee these requirements in tech-specs, since normal decay heat removal at shutdown is not a primary success path of a DBA.
3.4.1.4.1	Cold Shutdown - Loops Filled (mode 5)				
	Limitation on starting reactor coolant pumps (SG temp within 50° of RCS)	Minimizes liklihood of exceeding App. G pressure-temperature limits.	No	No	Reactor Coolant Pump limit is part of design basis for shutdown over-pressure protection. However, this is not a DBA as defined by criteria.
3.4.1.4.2	Cold Shutdown - Loops not filled.	Requires RHR Operation System to be operable to remove decay heat. RHR is also used to mix the boron in the reactor.	Yes (#2)	No	Criteria, as stated above, do not address normal decay heat removal requirements. Remains because of boron mixing assumption.
3.4.2.1	Safety Valves (pressurizer) (modes 4 anf 5)	To prevent RCS from being pressurized above its Safety Limit.	No	No	Criteria does not address overpressure protection when shutdown.
3.4.2.2	Safety Valves (pressurizer) (modes 1, 2, and 3)	To prevent RCS from being pressurized above its Safety Limit	Yes (#3)	Yes	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.4.3	a. Pressurizer Backup Heaters 150 Kw	Enhances natural circulation control of RCS pressure	No	Yes	Pressurizer heaters not credited in DBA analysis.
	b. Water Level < 92%	Ensures bubble as assumed in accident analysis	Yes (#2)	Yes	Redundant to High Pressurizer Level Reactor Trip at 92%.
3.4.4	Relief Valves (All PORV's and Block valves) (modes 1, 2, and 3)	Minimize opening of safety valves. (see comment)	Yes	Yes	Although not stated in BASES, PORV is used to reduce pressure in a SG tube rupture event. Therefore, spec stays.
3.4.5	Steam Generators (modes 1, 2, 3 and 4)	The purpose of this specification is to ensure the structural integrity of this part of the RCS.	Yes (as surveillance of primary success path component the steam generators)	Yes - does not allow heat-up above 200°F	This is the specification with all the tube surveillance requirements. The BASES do not address the decay heat removal function of the steam generator. The detailed surveillance could be removed with ISI.
3.4.6	Reactor Coolant System Leakage				
3.4.6.1	Leakage Detection Systems ° Particulate Radioactivity ° Containment Sump Level ° Containment Air Cooler ° Condensate Flow Rate ° Gaseous Radioactivity	To detect leakage from the reactor coolant pressure boundary. (consistent with Reg. Guide 1.45.)	Yes (#1)	Yes	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.4.6.2	Operational Leakage No RC pressure boundary leakage 1gpm unidentified leakage 1gpm total RCS-SG leakage 10gpm identified leakage 8gpm controlled leakage per RCP 1gpm leakage of RCS pressure isolation valves	To: provide early detection of impending failures control SG leakage in accordance with accident analysis assumptions prevent identified leakage from interfering with leakage detection systems ensure adequate performance of RCP seals prevent over pressurization of low pressure systems outside of containment	Yes (#1, #2)	Yes	
3.4.7	Chemistry	To ensure that corrosion of the RCS is minimized and reduces the potential for RCS leakage or failure due to stress corrosion.	No	Yes	
3.4.8	Specific Activity (reactor coolant)	To ensure that the resulting 2 hr. doses at site boundary don't exceed Part 100 for steam generator tube rupture accident.	Yes (#2)	Yes	
3.4.9.1	Pressure/Temperature Limits - Reactor Coolant System	Provide limits in accordance with App. G to ensure vessel integrity.	Yes (#2)	Yes	The BASES for this specification addresses the reactor vessel, primarily. No specific discussion is provided on the pressurizer limits. While the vessel is likely the most limiting component, the pressurizer LCO does

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
					ensure RCS integrity but does not appear to be covered by the criteria. The App. G pressure and temperature limits, while not exactly initial conditions of a DBA, they are reference bounds monitored and controlled within established limits.
3.4.9.2	Pressure/Temperature Limits - Pressurizer		No	No	
3.4.9.3	Overpressure Protection System (modes 3, 4, 5, 6 RCS ≤368°F)	Provide protection such that pressure will remain within App. G limits and vessel integrity will be ensured.	No	No	Postulated overpressure events during shutdown are not DBAs as defined by the criteria. Therefore this spec leaves.
3.4.10	Structural Integrity	ISI and IST programs for ASME Code Class 1, 2, and 3 components ensure that the structural integrity and operational readiness will be maintained.	Yes (#3)	Yes	Requirements are required by 10 CFR 50.55a(g) except where relief has been granted. Remains as surveillance of primary success path systems.
3.4.11	RCS Vents	To exhaust non condensible gases from RCS that could inhibit natural circulation core cooling.	No	Yes	Vents are not relied upon in any DBA success path.

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.5	EMERGENCY CORE COOLING SYSTEMS				
3.5.1	Accumulators	Ensures operability of system which provides initial cooling for core during large LOCA.	Yes (#3)	Yes	Some "realistic" analyses indicate that accumulator not necessary. App. K analysis requires them.
3.5.2	ECCS Subsystems -Tavg $\geq$350°F	Ensures operability of two subsystems to provide cooling for core if LOCA initiates above °350F.	Yes (#3)	Yes	-
3.5.3	ECCS Subsystems -Tavg <350°F	Ensures operability of one subsystem to provide cooling for core if LOCA initiates below 350°F.	Yes (#3)	Yes	-
3.5.4	ECCS Subsystems -Tavg $\geq$200°F	Prevents RCS overpressurization during shutdown by making SI pumps inoperable.	No	No	See comment on 3.1.2.3 regarding RCS overpressure during shutdown.
3.5.5	Refueling Water Storage Tank	Ensures adequate supply of water for ECCS within DBA analysis envelope.	Yes (#2)	Yes	
3.6	CONTAINMENT SYSTEMS				
3.6.1	PRIMARY CONTAINMENT				

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.6.1.1	Containment Integrity	Maintain primary containment integrity; restrict releases to rates and paths in DBA analyses.	Yes (#2, #3)	Yes	Containment integrity is really a DBA bounding "condition," not a process variable as referred to by Criteria #2. Also, containment integrity is not really a system as in Criteria #3, but the containment is.
3.6.1.2	Containment Leakage	Ensures that containment leakage is within bounds of safety analysis.	Yes	Yes - can not start-up.	A leak rate could be thought of as a process variable, but it is not monitored and controlled during normal operation. Appendix J leakage testing is very important to assurance of containment integrity. Maybe this testing should be 1) similar to or part of ISI/IST program or 2) included as surveillance requirements and acceptance criteria under T.S. 3.6.1.1.
3.6.1.3	Containment Air Locks	Ensures that containment leakage through air locks is within bounds of safety analysis.	Yes (#2, #3); This LCO is really SR and acceptance criteria for T.S. 3.6.1.1	Yes	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.6.1.4	Internal Pressure	Ensures containment structure integrity by: 1) limiting negative differential pressure 2) limiting initial internal pressure to meet DBA initial conditions (limiting DBA is steamline break)	Yes (#2)	Yes	Analyses show that accident consequences are quite insensitive to iinitial pressure assumption. Containments are generally well overdesigned for DBA pressure.
3.6.1.5	Air Temperature	Ensures initial temperature meets DBA (steamline break) bounding initial condition.	Yes (#2)	Yes	Comment on 3.6.1.4 generally applies to temperature as well.
3.6.1.6	Containment Vessel Structural Integrity	Ensure containment integrity	Yes	Yes	These tests are performed every few years; this "process variable" is not monitored and controlled during operation. Similar comment to 3.6.1.2. But this is a surveillance for a primary success path - the containment.
3.6.1.7	Containment Ventilation System	Ensure containment integrity by 1) purge valves being closed or 2) mini-purge valves being operable.	Yes (#2, #3)	Yes	
3.6.2	DEPRESSURIZATION AND COOLING SYSTEMS				

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.6.2.1	Containment Spray System	Ensure ability to depressurize and cool containment during DBA via two operable sprays.	Yes (#3)	Yes	
3.6.2.2	Spray Additive System	Ensures iodine removal efficiency for sprays assumed in DBA.	Yes (#3)	Yes	Recent source term term work and analyses seem to show that additives are not necessary.
3.6.2.3	Containment Cooling System	Ensures ability to cool containment in LOCA along with sprays.	Yes (#3)	Yes	
3.6.3	Containment Isolation Valves	Ensures containment isolation; basis for DBA analyses	Yes (#3)	Yes	
3.6.4	COMBUSTIBLE GAS CONTROL				Generation of significant amounts combustible gas is beyond DBA. Therefore, none of these LCOs meet the criteria.
3.6.4.1	Hydrogen Analyzers	Monitor build-up of hydrogen inside containment post-LOCA	No	Yes	A close call. Chapter 6 of FSAR implies they are necessary in Containment Design Basis. But they are not a primary success path.
3.6.4.2	Hydrogen Mixing Systems	Prevent localized accumulations of hydrogen	No	Yes	Same as 3.6.4.1.
3.7	PLANT SYSTEMS				

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.7.1	TURBINE CYCLE				
3.7.1.1	Safety Valves	To ensure that secondary pressure does not exceed 110% of design.	Yes (#3)	Yes	Bases do not mention that these valves are also necessary for removal of decay heat and overpressure protection of the RCS.
3.7.1.2	Auxiliary Feedwater System	To ensure ability to cool-down RCS following a loss of offsite power (per Wolf Creek BASES).	Yes (#3)	Yes	The Bases for this specification are incomplete. This system is necessary to mitigate a loss of normal feed-water, small loss of coolant accidents and maintain a safe hot shutdown.
3.7.1.3	Condensate Storage Tank	To provide sufficient AFW water supply to maintain hot standby for 4 hours and then cooldown to RHR cut-in.	Yes (#3)	Yes	
3.7.1.4	Specific Activity	To ensure steam line rupture event doses are within Part 100	Yes (#2)	Yes	Initial assumption in steam line break analysis. Probably not critical a parameter.
3.7.1.5	Main Steam Line Isolation Valves	To ensure that no more than one steam generator will blowdown in the event of a steam line rupture	Yes (#3)	Yes	
3.7.2	Steam Generator Pressure/ Temperature Limitation	To ensure pressure reduced stresses do not exceed the minimum fracture toughness stress limits.	No	Yes (prevents heat-up above 200°F.)	Does not clearly meet any DBA condition or process variable (#2). Only a factor at shutdown.

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.7.3	Component Cooling Water System	To provide cooling to certain safety related equipment - consistent with accident analysis.	Yes (#3)	Yes	
3.7.4	Essential Service Water System	To provide cooling to certain safety related equipment - consistent with accident analysis.	Yes (#3)	Yes	
3.7.5	Ultimate Heat Sink	To provide the heat sink and temperature to ensure sufficient cooling capacity to mitigate the effects of accidents.	Yes (#3)	Yes	
3.7.6	Control Room Emergency Ventilation System	Ensures that 1) the ambient air temperature does not exceed the allowable temperature for equipment and instrumentation cooled by the system, 2) the control room will be habitable	Yes (#3)	Yes	Although not specifically stated in BASES, it is assumed the equipment and instruments in control room support or are a primary success path for DBAs.
3.7.7	Emergency Exhaust Systems	Ensures that radioactive materials leaking from the ECCS equipment within the pump room following a LOCA are filtered prior to reaching the environment. (The operation of this system was assumed in the safety analysis.)	Yes (#3)	Yes	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.7.8	Snubbers	To ensure that the structural integrity of the RCS and all other safety related systems is maintained during and following a seismic or other event initiating dynamic loads.	No	Yes (as part of operability definition of equipment they support)	While snubbers do indeed support RCS and other safety systems, the snubbers are essentially part of the piping design itself. That is, the snubbers are assume to perform in a certain way in the dynamic analysis. They are not explicitly considered in Chapter 6 or 15, but are a structural/design consideration. Therefore, they do not meet criteria 3 and would not be in the tech-specs. Since the snubber are assumed to be present as an initial condition, Criterion 2 could apply. Also, the "leak before break" analysis minimizes the need for snubbers. Snubber surveillance would be handled just like other IST on RCS and other components.
3.7.9	Sealed Source Leakage	Ensures that leakage from byproduct, source, and Special Nuclear Material sources will not exceed allowable intake values.	No	No	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.7.10	Fire Suppression Systems	Ensure adequate fire suppression capability is available to confine and extinguish fires in areas of safety-related equipment.	No	No	These systems are not a part of DBA mitigation as defined by the criteria.
3.7.11	Fire Barriers	Confines fires and retards spread to adjacent areas.	No	No	(same as 3.7.10.)
3.7.12	Area Temperature Monitoring	Ensures safety-related equipment will not be subjected to temperatures in excess of their environmental qualification temperatures.	Yes (#2)	Yes (though specific equipment LCO action statement)	Temperatures in the area of vital equipment are variables monitored by the operator during normal operation. While they may not be "process variables," they represent conditions of equipment in the primary success path for mitigating DBAs, as well as an initial condition of the DBA. This meets criteria #2. Exceeding these may not be an immediate safety problem due to time available to correct and the equipment not truly being inoperable. From a practical standpoint, its had to imagine exceeding some of these specs.
3.8	ELECTRICAL POWER SYSTEMS	To provide sufficient power for safe shutdown and mitigation and control accidents			

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.8.1.1	A.C. Sources Operating (modes 1, 2, 3, 4)		Yes (#3)	Yes	
3.8.1.2	A.C. Sources Shutdown (modes 5 and 6)		No	No	BASES do not discuss the need for A.C. power when shutdown (although needed to shutdown). Mode 5, 6 events not DBAs.
3.8.2.1	D.C. Sources Operating (modes 1, 2, 3, 4)		Yes (#3)	Yes	This LCO remains because it contains the diesel generators, a primary success path. This LCO contain offsite power limits which are not primary success path, but are included because of the regulation and its importance.
3.8.2.2	D. C. Sources Shutdown (modes 5 and 6)		No	No	BASES do not discuss the need for D.C. power when shutdown (although needed to shutdown). Modes 5, 6 events not DBAs. The may very well be a tie between DC (and AC) power to the boron dilution event, a mode 5 and 6 event. If so, there specs would stay. This comment also applies to 3.8.1.2 and 3.8.3.2.
3.8.3.1	Onsite Power Distribution Operating (modes 1, 2, 3, 4)		Yes (#3)	Yes	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.8.3.2	Onsite Power Distribution Shutdown (modes 5 and 6)		No	No	same as 3.8.1.2, 3.8.2.2
3.8.4	Electrical Equipment Protective Devices	To protect containment electrical penetrations	No	Yes	These devices do not serve a direct success path function. Should a penetration fail, the plant is then in an action statement for containment integrity.
3.9	REFUELING OPERATIONS				
3.9.1	Boron Concentration	Maintain subcriticality	Yes (#2)	No	Initial condition of boron dilution accident.
3.9.2	Instrumentation - Source Range Monitors	To detect radioactivity changes in the core	Yes (#3)	No	Success path for boron dilution accident.
3.9.3	Decay Time	Ensures sufficient time has elapsed to allow decay of shortlived fission products. It is consistent with the assumptions in the accident analysis.	Yes (#2)	No	
3.9.4	Containment Building Penetrations	Isolate containment to mitigate fuel handling accident.	Yes (#2, #3)	No	
3.9.5	Communications (between control room and refueling station).	To provide prompt communication with station personnel.	No	No	
3.9.6	Refueling Machine	To ensure proper and safe machine operation.	No	No	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.9.7	Crane Travel	Ensures that in the event a fuel assembly is dropped, the activity will be limited to that contained in a single assembly and to prevent fuel heat removal and boron mixing.	Yes (#3)	No	Based on need to mix boron in boron dilution accident.
3.9.8	Residual Heat Removal and Coolant circulation	To ensure heat removal and boron mixing.	Yes (#3)	No	Based on need to mix boron in boron dilution accident.
3.9.9	Containment Ventilation System	Ensure automatic isolation of purge system.	Yes	No	Redundant to 3.9.4 and should be combined.
3.9.10/11	Water Level - Reactor Vessel and Storage Pool	To filter radioactivity following ruptured fuel assembly event.	Yes (#2)	No	Also important as biological shield and for fuel cooling. This is not addressed in the BASES.
3.9.12	Spent Fuel Assembly Storage	To prevent inadvertent criticality.	Yes (#2)	No	Assumed to be a DBA event.
3.9.13	Emergency Exhaust System	To filter releases from the fuel handling accident.	Yes (#3)	No	
3.10	SPECIAL TEST EXCEPTIONS				
3.10.1	Shutdown Margin	To allow radioactivity measurements.	Yes (#2)	No (but requires boration)	
3.10.2	Group Height Insertion and Power Distribution	To allow physics testing.	Yes (#2)	Yes	
3.10.3	Physics Tests	To allow physics testing.	Yes (#2)	Yes	
3.10.4	Reactor Coolant Loops	To allow startup tests	Yes (#2)	Yes	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.10.5	Position indication system	To allow rod drop tests	Yes (as surveillance see 3.1.3.3)	Yes	Note: All exceptions to Technical Specification for special testing should be in Technical Specifications specifically.
3.11	RADIOACTIVE EFFLUENTS				
3.11.1.1, 3.11.1.2	Liquid Effluents	To control releases and associated doses	No	No	
3.11.1.3	Liquid Rad waste Treatment System	To ensure treatment system availability.	No	No	
3.11.1.4	Liquid Holdup Tanks (quantity)	Limit release to amount assumed in accident analysis	Yes (#2)	No	
3.11.2.1, 3.11.2.2, 3.11.2.3	Gaseous Effluents	To Control releases and associated doses	No	No	
3.11.2.4	Gaseous Rad waste Treatment System	To ensure treatment system availability	No	No	
3.11.2.5	Explosive Gas Mixture	To prevent an explosion	No	No	
3.11.2.6	Gas Storage Tanks (quantity)	Limit release to amount assumed in accident analysis	Yes (#2)	No	
3.11.3	Solid Rad Waste	To provide good quality solid waste (50.36a)	No	No	
3.11.4	Total Dose	To limit total doses to public from fuel cycle	No	No	

LCO NO.	LCO TITLE	PURPOSE	LCO REMAINS TECH. SPEC. (CRITERIA)	ACTION STMT. HAS RX. POWER LIMITATION	COMMENTS
3.12	RADIOLOGICAL ENVIRONMENTAL MONITORING				
3.12.1	Monitoring Program	To monitor exposure pathways	No	No	
3.12.2	[illegible] Use Census	To obtain information necessary to update ODCM for exposure pathways	No	No	
3.12.3	Interlab Comparison	To obtain independent checks on measurements	No	No	

ENCLOSURE 3

LCO "COUNT"*

WOLF CREEK

Total Number	129
Power Limitation	73
No Power Limitation	56

Initial Split:

Total In:	79 (61%)	Total Out	50 (39%)
Power Limitation	59	Power Limitation	14
No Power Limitation	20	No Power Limitation	36

LIMERICK

TOTAL NUMBER	138
Power Limitation	___
No Power Limitation	___

Initial Split:

Total In:	___	Total Out	___
Power Limitation	___	Power Limitation	___
No Power Limitation	___	No Power Limitation	___

*Counts are approximate - LCO's can be grouped many ways-some included detailed tables and surveillance requirements.

ENCLOSURE 4

INSIGHT AND COMMENTS
(Potpourri)

- Normal Boration comes out (secondary success path and path to cold shutdown). - W
- Review made without benefit of primary success path analysis. - G
- Criterion 2 includes surveillance systems of process variables. - G
- Some LCO's stay because they are surveillance of primary success path. - G
- Power distribution:
  - complex and intertwined - G
  - not risk significant - but stays
- Some BASES very poor:
  - AFW, PORVs, Turbine Overspeed Protection - G
- Criteria don't address requirements redundant to regulations such as ISI/IST. - G
- Definition for "immediate threat" on subjective criteria not yet documented. - G
- 0737 items, RCS vents, Pressurizer Heaters leave. - W, G
- Criteria (and discussion) don't reference staff SER.
- Criteria do not discuss (or include) instrumentation which:
  - Triggers action in emergency procedures (non-primary path)
  - Confirms operation of primary success path systems. - G
- Criteria do not discuss special exceptions to tech-specs (3.10). - G

W = Wolf Creek related comment.

L = Limerick related comment.

G = General Comment.

ENCLOSURE 5

Limiting Conditions for Operation with Action Statements that Limit Reactor Power

Based on the enclosed split, 14 LCOs are in this category for Wolf Creek. LCOs are in this category for Limerick. This number is viewed to be quite small and their disposition or arguments concerning disposition, will hopefully not detract from the overall Technical Specification improvement program objectives. Recommended disposition is assigned in the Enclosure 5. Some judgements are very close calls. Two points should be made. First, these items as a whole appear to have more safety significance than most LCOs removed. Second, a reasonable argument to keep these requirements in Technical Specifications, so that all such requirements are in one place, can be made. This argument should not yet be discounted. Following is a list of the LCOs for each set of Technical Specifications. Information is provided for each LCO that should be useful in making a final determination.

Wolf Creek

3.1.2.2/3.1.2.4/3.1.2.6	Reactivity Control/Boration Control
3.3.3.5	Remote Shutdown Instrumentation
3.3.3.6	Accident Monitoring Instrumentation
3.4.3	Pressurizer Heaters
3.4.7	Chemistry
3.4.9.2	Pressurizer Pressure-Temperature Limits
3.4.11	RCS Vents
3.6.4.1	Hydrogen Analyzer
3.6.4.2	Hydrogen Mixing
3.7.2	Steam Generator Pressure-Temperature Limits
3.7.8	Snubbers
3.8.4	Electrical Equipment Protective Devices

<u>3.1.2.2/3.1.2.4/3.1.2.6 - Boration Control</u> - With RCS temperature equal to or greater than 350°F, a minimum of 2 boron injection flow paths are required to meet the single failure criterion. The technical basis for the requirement is to provide a shutdown margin of 1.3% $\Delta k/k$ after xenon decay and cool down from operating conditions. Criterion 3, although it is not stated, only progresses to hot shutdown - since Chapter 15 stops at hot shutdown also. Boration is necessary to proceed to cold shutdown. It is judged to be of low risk significance, but is clearly more important than many other LCOs being removed.

<u>3.3.3.5 Remote Shutdown Instrumentation</u> - This requirement is to satisfy GDC 19 on shutdown from outside the control room and Appendix R safe shutdown. Remote shutdown is <u>not</u> a primary success path. However, manual actions, based on plant conditions indicated to the operator, have been found to be important in at least one PRA fire analysis.

<u>3.3.3.6 Accident Monitoring Instrumentation</u> - This requirement is consistent with revision 2 of Reg. Guide 1.97. Reactor trip system and Engineered Safety features Actuation System instrumentation appears to provide many of the same key parameters (although the range may be more limited). In addition, RTS and ESFAS requirements apparently do not cover the control room indication which is the focus of this requirement.

<u>3.4.3 Pressurizer Heaters</u> - Pressurizer heaters allow pressure control to be maintained by the pressurizer and enhances the capability to establish natural circulation. They are not credited in any safety analysis. They are normally not modeled in a PRA since core cooling can be maintained without them.

<u>3.4.7 Chemistry</u> - These requirements are intended to ensure that corrosion of the RCS is minimized and to reduce the potential for leakage or failure due to stress corrosion. Based on discussions with Chemical Engineering Branch personnel, the "leak before break" studies consider poor chemistry control.

Further, industry programs have been initiated that control reactor water chemistry that are more conservative than the Technical Specifications. Some utilities however, are apparently not involved in these Owners Group programs.

3.4.9.2 Pressurizer Pressure - Temperature Limits - The Technical Specification BASES do not discuss these limits. It is judged that these limits are not of immediate importance since the reactor vessel is the most limiting component and the vessel pressure temperature limits remain in Technical Specifications. The differential temperature limit on the spray nozzle is noted to be very large, and practically speaking, very difficult to violate (maximum spray water temperature differential of 583°F).

3.4.11 Reactor Coolant System Vents - The vents are provided to exhaust non-condensibles that could inhibit natural circulation core cooling. The vent requirement stems directly from Three Mile Island accident and ensures the capability to perform the venting function.

3.6.4 Combustible Gas Control (Hydrogen Analyzer and Hydrogen Mixing) - These systems and the basis for the requirements are discussed in Chapter 6 of the FSAR. From the standpoint of the transient and accident analysis, and Criterion 3, these requirements would leave the Technical Specifications. Reading of Chapter 6 makes this a close call in that a small fraction (5%) of the core is assumed to react to produce hydrogen and serves as the design bases for these requirements. This could be interpreted to mean including the requirements under Criterion 3.

3.7.2 Steam Generator Pressure - Temperature Limits - While steam generator pressure and temperature are process variables, the basis for these limits is the brittle fracture concern of the steam generator (RT-NDOT = 60°F). The limit is 70°F at 200 psi which does not appear to come into play at operating temperature and pressure or when using the steam generator to remove decay heat. The surveillance only applies when water temperature is less than 70°F. This specification was not judged to meet any of the criteria.

3.7.8 Snubbers - While the snubbers are important to the dynamic response of the piping, components and systems they support, snubbers are judged as not meeting Criterion 3. They are viewed as part of the piping design, which is not (and need not be) included in Technical Specifications in its entirety. In-operable snubbers would still require an engineering analysis and determination as to the "operability" of the system they support. This issue relates directly to any future work done on the operability definition.

3.8.4 Electrical Equipment Protective Devices - These devices are required to protect containment electrical penetrations and penetration conductors. They do not meet any of the criteria. (The list of devices is the largest single LCO (by page volume) in this set of Technical Specifications). The primary success path of concern here appears to be containment integrity, however, these requirements are not judged to be a direct support system for this success path.

ENCLOSURE 4

WOG TECH SPEC SUBCOMMITTEE MEETING

JANUARY 21-23, 1986

WOLF CREEK TECH SPECS

TEST AGAINST CRITERIA

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
OBJECTIVE - TO SPLIT WOLF CREEK TECH SPECS

NUMBER	TITLE	PURPOSE (1)	TEST AGAINST CRITERIA CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.1.1.1*	SHUTDOWN MARGIN, T>200 DEGF, M-1,2,3,4	ENSURE SHUTDOWN MARGIN >OR= 1.3%	NO	YES	NO	NO	SEE COMMENT #1
3.1.1.2*	SHUTDOWN MARGIN, T<200 DEGF, M-5	ENSURE SHUTDOWN MARGIN >OR= 1%	NO	YES	NO	NO	SEE COMMENT #2
3.1.1.3	MODERATOR TEMPERATURE COEFFICIENT	L.L. < MTC < U.L.	NO	NO	NO	YES	
3.1.1.4*	MINIMUM TEMPERATURE COEFFICIENT	T-AVE > 551 DEGF	NO	YES	NO	YES	
3.1.2.1*	BORATION FLOWPATHS, M-4,5,6	FLOWPATH OPERABILITY	NO	NO	YES	NO	SEE COMMENT #2
3.1.2.2*	BORATION FLOWPATHS, M-1,2,3	FLOWPATH OPERABILITY	NO	NO	YES	YES	SEE COMMENT #2
3.1.2.3*	CHARGING PUMPS - SHUTDOWN, M-4,5,6	PUMP OPERABILITY	NO	NO	YES	NO	SEE COMMENTS #2,20
3.1.2.4*	CHARGING PUMPS, M-1,2,3	PUMP OPERABILITY	NO	NO	YES	YES	SEE COMMENTS #2, 3
3.1.2.5*	BORATED WATER SOURCE, M-5,6		NO	NO	YES	NO	SEE COMMENT #38
3.1.2.6*	BORATED WATER, M-1,2,3,4	BORATED WATER AVAILABILITY	NO	NO	YES	YES	SEE COMMENT #3
3.1.3.1*	GP HT.	VERIFY DBA ASSUMPTION	NO	YES	YES	YES	SEE COMMENT #4
3.1.3.2	RPI (DRPI VS DEMAND)	MONITORS FOR RPI	NO	NO	NO	YES	

(1) statement of purpose not included for all specs

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
OBJECTIVE - TO SPLIT WOLF CREEK TECH SPECS

NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.1.3.3	RPI	RPI MONITORS	NO	NO	NO	NO	
3.1.3.4	ROD DROP TIME	VERIFY DBA ASSUMPTIONS	NO	NO	NO	NO	
3.1.3.5*	SHUTDOWN ROD INSERTION LIMIT	VERIFY DBA ASSUMPTIONS	NO	YES	NO	NO	
3.1.3.6*	CONTROL ROD INSERTION LIMITS	VERIFY DBA ASSUMPTIONS	NO	YES	NO	NO	
3.2.1*	AXIAL FLUX DIFF.	VERIFY DBA ASSUMPTIONS	NO	YES	NO	YES	
3.2.2	F-Q	VERIFY DBA ASSUMPTIONS	NO	NO	NO	YES	
3.2.3	F-DELTA-H AND FLOW	VERIFY DBA ASSUMPTIONS	NO	NO	NO	YES	SEE COMMENT #5
3.2.4*	QUAD POWER TILT	VERIFY DBA ASSUMPTIONS	NO	YES	NO	YES	
3.2.5*	DNB	VERIFY DBA ASSUMPTIONS	NO	YES	NO	YES	
3.3.1*	RT INSTS.	VERIFY DBA ASSUMPTIONS	NO	NO	YES	YES	SEE COMMENT #6
3.3.2*	ESF INSTS.	VERIFY DBA ASSUMPTIONS	NO	NO	YES	YES	SEE COMMENT #6
3.3.3.1*	RAD. MONITOR INSTS.	POTENTIAL DBA PRECURSOR	YES	NO	YES	NO	SEE COMMENT #7

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.3.3.2	MIDS	PWR DIST SURV.	NO	NO	NO	NO	
3.3.3.3	SEISMIC INSTS.	SEISMIC SURV.	NO	NO	NO	NO	
3.3.3.4	METEOROLOGICAL INSTS.	METEOROLOGICAL SURV.	NO	NO	NO	NO	
3.3.3.5	REMOTE SHUTDOWN INSTS.	ALT. TO CONTROL ROOM	NO	NO	NO	YES	
3.3.3.6*	ACCIDENT MONITORING INSTS.	PAM - TMI REQUIMENTS	NO	NO	YES	YES	SEE COMMENTS #6, 8
3.3.3.7	CHLORINE DETECTION	CONTROL ROOM ATMOS. SURV.	NO	NO	NO	NO	
3.3.3.8	FIRE DET. INSTS.		NO	NO	NO	NO	
3.3.3.9	LOOSE PARTS DET. SYST.		NO	NO	NO	NO	
3.3.3.10*	RAD. LIQ. EFFL. INSTS.	DBA ASSUMPTION	NO	NO	YES	NO	SEE COMMENTS #9, 10
3.3.3.11*	RAD GASEOUS EFFL. INSTS.	DBA ASSUMPTION	NO	NO	YES	NO	SEE COMMENTS #9, 10
3.3.4	TURB. OVERSPEED	TURBINE PROTECTION	NO	NO	NO	YES	
3.4.1.1*	RCS LOOPS, M-1,2	DBA ASSUMPTION	NO	YES	NO	YES	SEE COMMENT #11

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
OBJECTIVE - TO SPLIT WOLF CREEK TECH SPECS

SHEET [illegible] OF [illegible]

NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	A[illegible] F[illegible] RED.	COMMENTS
3.4.1.2*	RCS LOOPS, M-3	DBA ASSUMPTIONS	NO	YES	NO	NO	SEE COMMENT #12
3.4.1.3*	RCS LOOPS, M-4	DBA ASSUMPTIONS	NO	YES	NO	NO	SEE COMMENT #13
3.4.1.4.1*	RCS LOOPS, M-5	DBA ASSUMPTIONS	NO	YES	NO	NO	SEE COMMENT #13
3.4.1.4.2*	RCS LOOPS, M-5, LOOPS NOT FULL	DBA ASSUMPTIONS	NO	YES	NO	NO	SEE COMMENT #13
3.4.2.1	PRZR CODE SAFETY VLV., M-4,5		NO	NO	NO	NO	
3.4.2.2*	PRZR CODE SAFETY VLV., M-1,2,3	DBA ASSUMPTIONS	NO	NO	YES	YES	
3.4.3*	PRZR		NO	YES	YES	YES	
3.4.4*	PORV'S		NO	NO	YES	YES	SEE COMMENT #14
3.4.5	STEAM GENERATORS		NO	NO	NO		SEE COMMENT #15
3.4.6.1*	RCS LEAK DETECTORS		YES	NO	NO	YES	
3.4.6.2*	RCS LEAKAGE LIMITS		NO	YES	NO	YES	SEE COMMENT #16
3.4.7	RCS CHEMISTRY		NO	NO	NO	YES	

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.4.8*	RCS SPEC. ACTIVITY		NO	YES	NO	YES	SEE COMMENT #17
3.4.9.1	P-T LIMITS		NO	NO	NO	YES	
3.4.9.2	PRZR HEATUP AND COOLDOWN		NO	NO	NO	YES	
3.4.9.3	COLD OVER. PRES. PROT.		NO	NO	NO	--	SEE COMMENT #18
3.4.10	RCS STRUCT. INTEG.		NO	NO	NO	NO	
3.4.11	RCS VENTS		NO	NO	NO	--	SEE COMMENT #19
3.5.1*	ECCS - ACCUMULATORS		NO	YES	NO	YES	
3.5.2*	ECCS SUBSYSTEMS		NO	NO	YES	YES	
3.5.3*	EECS SUBSYSTEMS, M-4		NO	NO	YES	--	
3.5.4	SI PUMPS INOP, T<200 DEGF		NO	NO	NO	--	SEE COMMENT #20
3.5.5*	RWST		NO	YES	YES		
3.6.1.1*	CONT. INTEG.		NO	NO	YES	YES	SEE COMMENT #21

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.6.1.2	CONTAINMENT LEAKAGE		NO	NO	NO		SEE COMMENT #22
3.6.1.3*	CONTAINMENT AIR LOCKS		NO	NO	YES	YES	SEE COMMENT #23
3.6.1.4*	CONTAINMENT PRESSURE		NO	YES	NO	YES	
3.6.1.5*	CONTAINMENT TEMPERATURE		NO	YES	NO	YES	
3.6.1.6*	CONTAINMENT STRUCT. INTEG.		NO	NO	YES		SEE COMMENT #24
3.6.1.7*	PURGE AND EXH. ISOL. VLVS.		NO	NO	YES		
3.6.2.1*	CONTAINMENT SPRAY		NO	NO	YES		
3.6.2.2*	SPRAY ADD. SYST.		NO	YES	YES		
3.6.2.3*	CONT. FAN COOLERS		NO	NO	YES		
3.6.3*	CONT. ISOL. VLVS.		NO	NO	YES		SEE COMMENT #25
3.6.4.1	H-2 ANALYZERS		NO	NO	NO		
3.6.4.2	H-2 CONTROL SYST.		NO	NO	NO		

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (T)			ACTION POWER RED.	COMMENTS
			CRIT1	CRIT2	CRIT3		
3.7.1.1*	TURBINE SAFETY VLVS.		NO	NO	YES	YES	
3.7.1.2*	AUX. FEEDWATER		NO	NO	YES	YES	
3.7.1.3	COND. STOR. TANK		NO	NO	NO	YES	SEE COMMENT #26
3.7.1.4*	SEC. COOLANT SPEC. ACT.		NO	YES	NO	YES	
3.7.1.5*	MISV - OPERABLE		NO	NO	YES	YES	
3.7.2	S.G. P-T LIMITS		NO	NO	NO	NO	
3.7.3*	CCW SYSTEM		NO	NO	YES	YES	
3.7.4*	ESW SYSTEM		NO	NO	YES	YES	
3.7.5*	ULT. HEAT SINK		NO	NO	YES	YES	SEE COMMENT #27
3.7.6*	CONT. RM. EMERG. VENT SYST.		NO	NO	YES	YES	SEE COMMENTS #28, 29
3.7.7*	EMERG. EXHAUST SYST.		NO	NO	YES	YES	SEE COMMENTS, #28, 29
3.7.8*	SNUBBERS		NO	NO	YES	NO	SEE COMMENT #30

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.7.9	SEALED SOURCE CONTAMINATION		NO	NO	NO		
3.7.10	FIRE SUPPRESSION SYST. 3.7.10.1 .2 .3 .4		NO	NO	NO		SEE COMMENT #39
3.7.11	FIRE BARRIER PENETS.		NO	NO	NO		
3.7.12	AREA TEMP. MONITORS		NO	NO	NO		SEE COMMENT #31
3.8.1.1*	A.C. SOURCES		NO	NO	YES		SEE COMMENT #32
3.8.1.2*	A.C. SOURCES, M-5,6		NO	NO	YES		
3.8.2.1*	D.C. SOURCES		NO	NO	YES		SEE COMMENT #32
3.8.2.2*	D.C. SOURCES, M-5,6		NO	NO	YES		
3.8.3.1*	ONSITE PWR. DIST.		NO	NO	YES		
3.8.3.2*	ONSITE PWR DIST, M-5,6		NO	NO	YES		
3.8.4.1	CONT. PENET. OVERCURRENT PROTECTORS		NO	NO	NO	YES	SEE COMMENT #33
3.9.1	RCS BORON CONC., M-6		NO	NO	NO		SEE COMMENT #34

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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.9.2	S.R. INSTS, M-6		NO	NO	NO		
3.9.3*	DECAY TIME, M-6		NO	YES	NO		
3.9.4*	CONT. PENETS., M-6		NO	NO	YES		
3.9.5	COMMUNICATIONS, M-6		NO	NO	NO		
3.9.6	REFUELING MACHINE		NO	NO	NO		
3.9.7*	CRANE TRAVEL, M-6		NO	YES	NO		
3.9.8.1	RHR LOOPS, M-6 AND L>23 FT		NO	NO	NO		SEE COMMENT #35
3.9.8.2	RHR LOOPS, M-6 AND L<23 FT		NO	NO	NO		SEE COMMENT #35
3.9.9*	CONT. VENTS, M-6		NO	NO	YES		
3.9.10.1*	R.V. WATER LEVEL, M-6		NO	YES	NO		SEE COMMENT #36
3.9.10.2*	R.V. WATER LEVEL, M-6		NO	YES	NO		SEE COMMENT #36
3.9.11*	STORAGE POOL W.L.		NO	YES	NO		SEE COMMENT #36

WOG TECH SPEC SUBCOMMITTEE MEETING 1/21/86 -- 1/23/86
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NUMBER	TITLE	PURPOSE	TEST AGAINST CRITERIA (1) CRIT1	CRIT2	CRIT3	ACTION POWER RED.	COMMENTS
3.9.1[illegible]	SPENT FUEL STORAGE		NO	NO	NO		SEE COMMENT #34
3.9.13*	EMERG. EXH. SYST.		NO	NO	YES		SEE COMMENT #29
3.10	SPEC. TEST EXCEPTS.	3.10.1 - out .2 - in .3 - in .4 - in .5 - out	~~NO~~	~~NO~~	~~NO~~		SEE COMMENT #37
3.11.1.1	RAD. LIQ. EFFLS.		NO	NO	NO		
3.11.1.2	DOSE		NO	NO	NO		
3.11.1.3	LIQ. RADWASTE TREATMENT		NO	NO	NO		
3.11.1.4*	RAD. LIQ. HOLDUP TANKS		NO	YES	NO		
3.11.2.1	GASEOUS EFFL. DOSE R.		NO	NO	NO		
3.11.2.2	NOBLE GAS DOSE		NO	NO	NO		
3.11.2.3	I-131, 133, H-3 DOSE		NO	NO	NO		
3.11.2.4	GAS RADWASTE TREATMENT		NO	NO	NO		
3.11.2.5	O-2 CONC. IN WASTE GAS TANK		NO	NO	NO		

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3.11.2.6*	RAD. GAS STORAGE TANKS		NO	YES	NO		
3.11.3	SOLID RAD. WASTE		NO	NO	NO		
3.11.4	TOTAL DOSE		NO	NO	NO		
3.12.1	RAD. ENV. MONITORS		NO	NO	NO		
3.12.2	LAND USE CENSUS		NO	NO	NO		

COMMENTS ON WOLF CREEK TECH SPEC SPLIT
WOG MEETING JANUARY 21-23, 1986

A total of ~~71~~ 72 LCO's meet criteria
A total of ~~56~~ 55 LCO's fail criteria
~~124~~ 127 Total LCO's Evaluated

* LCO Meets Criteria

NO.	COMMENT
1.	In modes 1 and 2, Shutdown Margin (SDM) is not a "process variable". In modes 3 and 4 shutdown margin satisfies criteria #2 because SDM can be controlled via boron concentration.
2.	Criteria satisfied, based on information on Boron Dilution DBA which requires boron injection for accident mitigation - A plant specific DBA requirement.
3.	Redundant to ECCS Tech Spec.
4.	Criteria #3 satisfied because Operable implies Trippable.
5.	The RCS flow should be included with the DNB Tech Spec (3/4.2.5).
6.	The tech spec should only include insts. assumed in the Safety Analysis, for example, Int. Range Level Reactor Trip should be deleted.
7.	New Fuel Pool Radiation Monitor not assumed in any DBA analysis, therefore omit from Tech Spec.
8.	Instrumentation needed to go from an accident condition to a Safe Shutdown condition would satisfy criteria #3 and should be retained in the specs. Any redundant insts. or insts required for ERG reasons should be removed from the spec based on EGR's not being in the FSAR.
9.	Criteria #3 satisfied, per FSAR Chapter 15 statement that S.G. blowdown automatically isolates on Hi Radiation Alarm. Other insts. not assumed in Safety Analysis should be removed from the Spec.
10.	Insts. assumed in Safety Analysis in TS 3.3.3.10 and 3.3.3.11 should be relcoated to T.S. 3.3.3.1, then these two specs could be deleted.
11.	Since the LCO surveillance is on flow and the DNB Tech Spec includes a flow LCO and Surveillance this Tech Spec could be deleted.
12.	Criteria #2 is satisfied due to the M-3 reactivity addition accident.
13.	Per FSAR, loop operation is asumed to assure complete mixing in R.V.

14. PORV in Safety Analysis is manually actuated, therefore Channel Calibration Surveillance should be deleted. Also, the PORV used to mitigate a tube rupture accident is a plant specific analysis assumption.

15. The spec is used to include S.G. ISI in the tech specs. If S.G. operability is covered by another spec (3.4.1.1), for example, the surveillance should be removed to the ISI program and the LCO deleted.

16. Criteria #2 is satisfied in that leakage is Controllable by closing isolation valves, reducing pressure, etc.

17. Criteria #2 is satisfied by Operator via feed/bleed, PWR reduction, etc.

18. Per FSAR, the DBA criteria is not met (i.e., COMS not described in Chapters 6 or 15).

19. RCS vent not assumed in FSAR.

20. Not required, based on COMS not included in DBA. Also, restrictions on charging pumps based on COMS in other Tech Specs can be deleted.

21. LCO meets criteria 3, but the Surveillance references other LCO's and appears to be redundant.

22. LCO fails criteria #2 because leakage is not controllable by the operator.

23. Only Part a. of LCO satisfies Criteria #3 Part b. - covering leakage fails criteria and should be deleted.

24. Criteria #3 satisfied but the LCO only refers to Surveillances. The Surveillances should be removed from the spec and a surveillance program referenced.

25. This LCO should be combined with TS 3.6.1.1 and the valve list removed to another controlled document.

26. Wolf Creek FSAR assumes ESW as source of Aux Feedwater.

27. A plant specific TS. Plant specific analysis may be able to show the UHS temperature or level requirements are not necessary.

28. The LCO satisfies criteria #3 for a DBA but the Chapter 15 Assumptions required by the SRP are excessively conservative. An analysis using consistent assumptions from other DBA calculations may show that the LCO is not needed for DBA mitigation.

29. The surveillance requirements for these tech specs should be removed to another controlled document.

30. LCO satisfies criteria #3 but surveillance should be removed to ISI program.

31. LCO is Eq. Qual. Basis Only, not DBA, therefore no Tech Spec criteria are satisfied.

32. Surveillance should be removed from Tech Specs.

33. Component operation not assumed by any DBA Assumptions, therefore LCO and Surveillance can be removed from Tech Specs.

34. No DBA Assumption involved in LCO.

35. No Boron Dilution DBA in Mode 6, therefore no Tech Spec criteria apply.

36. DBA Assumption in LCO.

37. Special Test Exceptions LCO should be retained unless the LCO in the exception has been deleted.

38. Criteria #3 only applies to RWST portion of LCO and then only when in mode 5.

39. 4 LCO's contained in Subsections of 3.7.10, all LCO's fail the criteria test.