

NRC Public Meeting

Industry Operability Guidance Initiative

June 28, 2016



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NRC Public Meeting - June 28, 2016

Agenda

- Meeting Objectives
- Problem Statement
- Determination Process
- Industry Definitions
 - Operability
 - Presumption of Operability
 - Alternative Analytical Methods
 - Reasonable Expectation of Operability
 - Mission Time
 - Specified Safety Function
- Next Steps
- Questions and Discussion

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Meeting Objectives

- Review the industry operability guidance initiative goals
- Provide overview on Operability Determination Process (ODP)
- Discuss key definitions and their basis
- Communicate status of ODP guidance development and preliminary definitions

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Problem Statement

The nuclear utility industry has not established clear guidance for performing OPERABILITY determinations for Technical Specification structures systems and components. The lack of industry guidance has resulted in inconsistent implementation and expectations. Operability determinations and associated resolution of issues must be appropriately balanced to ensure focus remains on safety.

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Project Goal

Develop industry guidance necessary to effectively and efficiently address TS equipment operability

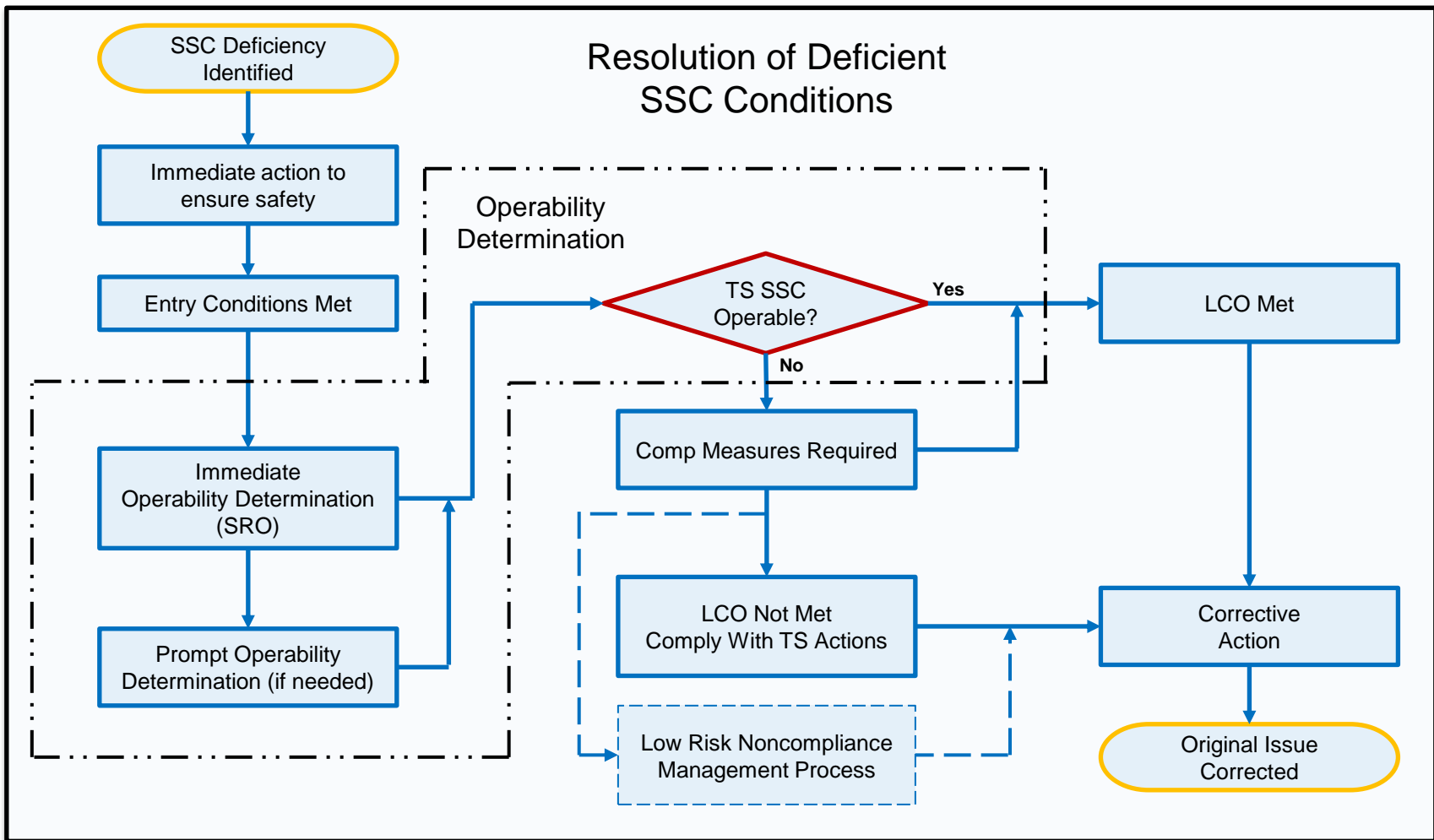
- ODP Development
- Terminology – provide clarity for major concepts

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- ODP
 - Developing entry conditions
 - Defining graded approach
 - Includes engineering judgment
 - Licensed Operator makes determination

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Process Overview



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- Subset of nonconformances enter ODP
 - Defining and clarifying this subset
- Operability is a State Function
 - Defining and clarifying the transition

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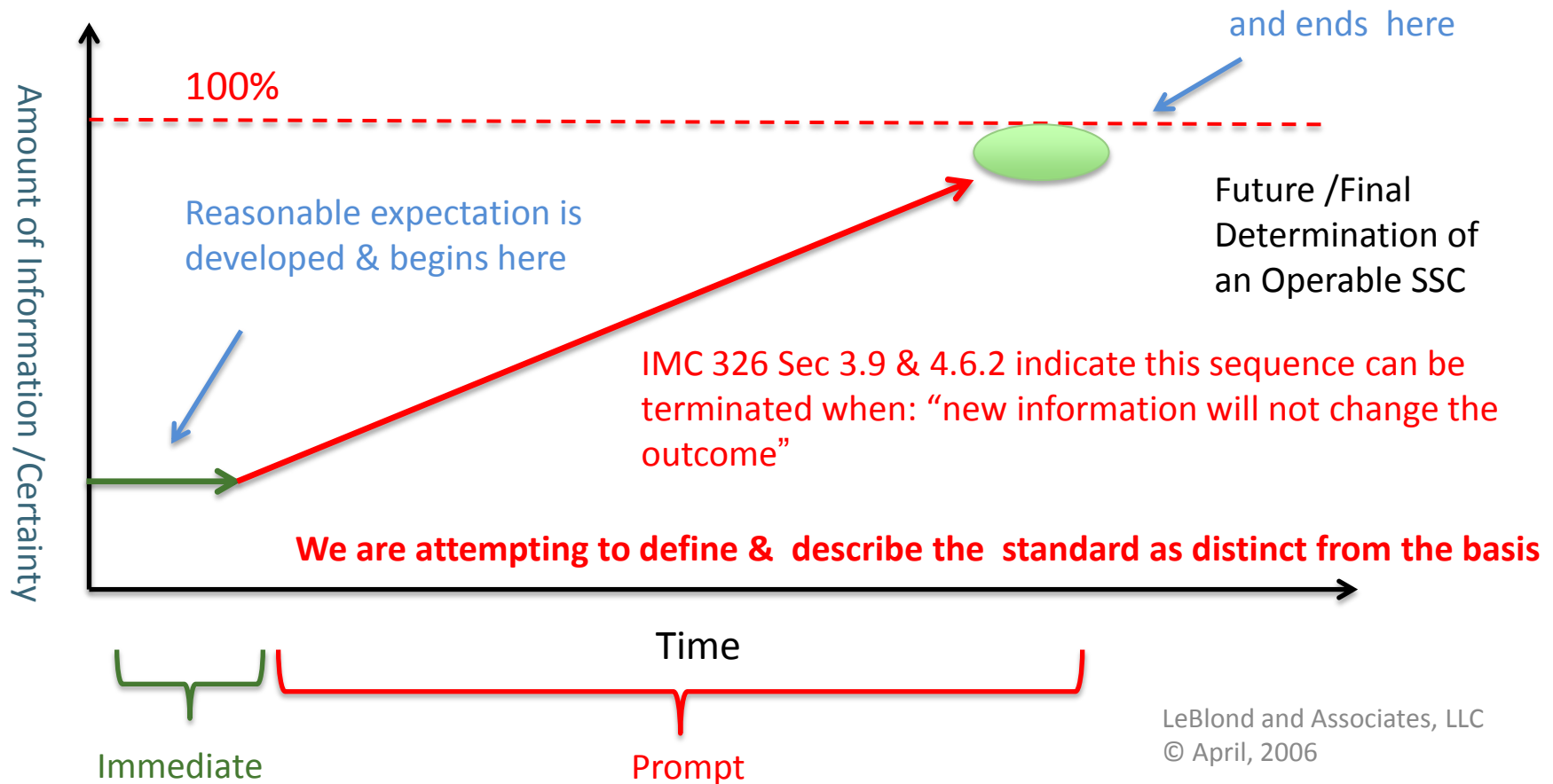
- Entry Conditions
 - Need to perform OD not consistently applied
 - Potential degraded/nonconforming conditions, Actual degraded/nonconforming conditions, presumption of operability and operability called into question are different terms attempting to express ODP entry conditions
 - Three Major Classes
 - Questions
 - No direct involvement with installed SSC
 - Issue is trivial

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- Clarify understanding of what is a Reasonable Expectation
 - Commensurate w/Issue Complexity
- Immediate OD
 - Determination made by Licensed Operator
 - Possible to rely upon checked box
- Prompt OD
 - change in final answer possible
 - More information necessary

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Graphical Summary of Reasonable Expectation of Operability



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- Operability

- The improved STS definition of operability states:
 - A system, subsystem, train, component, or device shall be OPERABLE when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified function(s) are also capable of performing their related support function(s).
- The improved STS definition will be used in the industry operability guidance document.
- The term "specified function(s)" in the GL 80-30 definition is equivalent to the improved STS term "specified safety function(s)".

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Alternative Analytical Methods

- Alternative analytical methods are used when determining operability of an SSC which are different from those described in the current licensing basis, and may consider only the current plant conditions and realistic system performance. Alternative analytical methods may include alternate, and typically more recent, methods or analytical tools. The use of alternative analytical methods requires a level of engineering judgement on the applicability and acceptability of the alternate for the situation under consideration. The use of alternative analytical methods is not subject to evaluation under 10 CFR 50.59 unless the alternative methods are incorporated in to the design and licensing basis.

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- **Mission Time**

- The time an SSC must operate to accomplish the specified safety function, as required by its role in the accidents analyses described in Chapters 6 and 15 of the FSAR (or equivalent)
- Based upon Several NRC regulatory guides, such as:
 - Regulatory Guide 1.186, "Guidance and Examples for Identifying 10 CFR 50.2 Design Bases," which endorses NEI 97-04, "Design Bases Program Guidelines."
 - Regulatory Guide 1.27, Revision 2, "Ultimate Heat Sink for Nuclear Power Plants," January 1976.
 - Regulatory Guide 1.52, Revision 2, "Design, Testing, and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants," March 1978.

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- **Presumption of Operability**
 - A TS SSC is presumed to be operable if the associated surveillance requirements have been met, unless there is an issue associated with the SSC or its related support SSCs that results in doubt regarding the ability of an SSC to satisfy the definition of Operability.

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- Reasonable Expectation

- The discovery of a degraded or nonconforming condition may call the operability of one or more SSCs into question. A subsequent determination of operability should be based on the licensee's "reasonable expectation," from the evidence collected, that the SSCs are operable and that the operability determination will support that expectation. Reasonable expectation of operability does not mean absolute assurance and may utilize engineering judgment. There may be a reasonable expectation of operability when the possibility of failure of an SSC has increased, but not to the point of eroding the reasonable expectation of operability.

SPECIFIED SAFETY FUNCTION



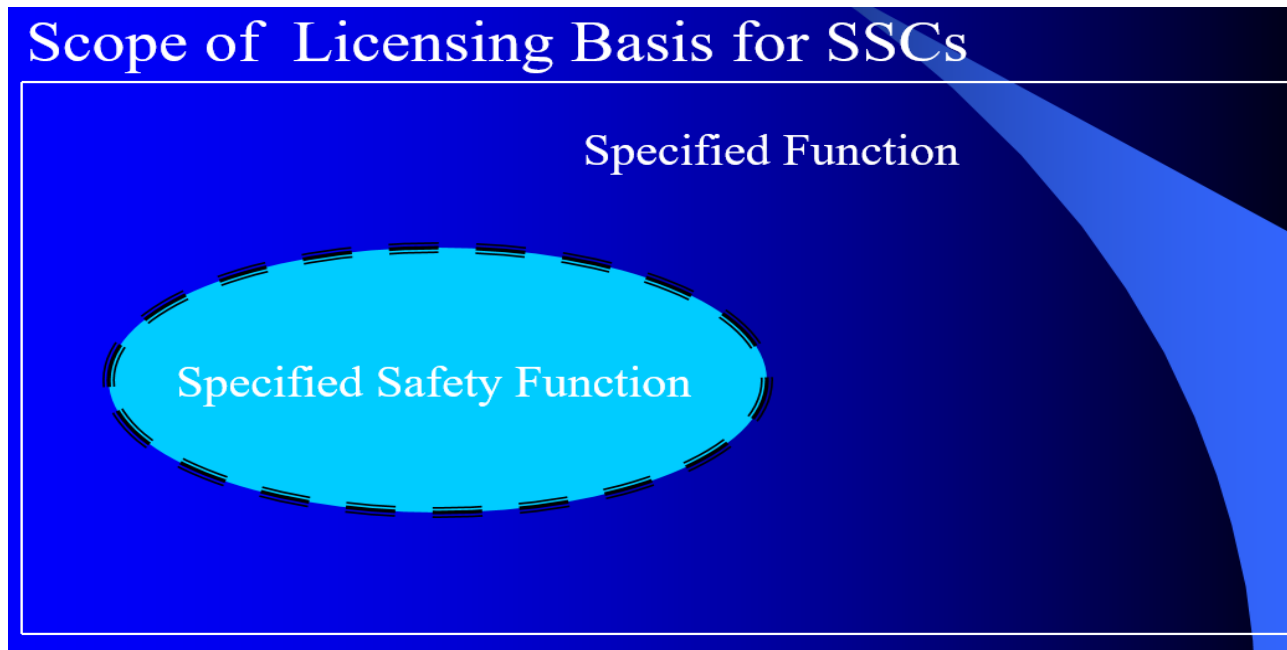
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- Specified Safety Function isn't Well Defined
- Agreement exists that specified safety functions are not all CLB Functions



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- The safety analysis, reviewed and approved by the NRC, establishes how each plant meets the regulations.
- 10 CFR 50.36 states that the TS shall be derived from the analyses and evaluation included in the safety analysis report.
- However, 10 CFR 50.36 wasn't clear what portions of the safety analysis report should be included in TS controls.

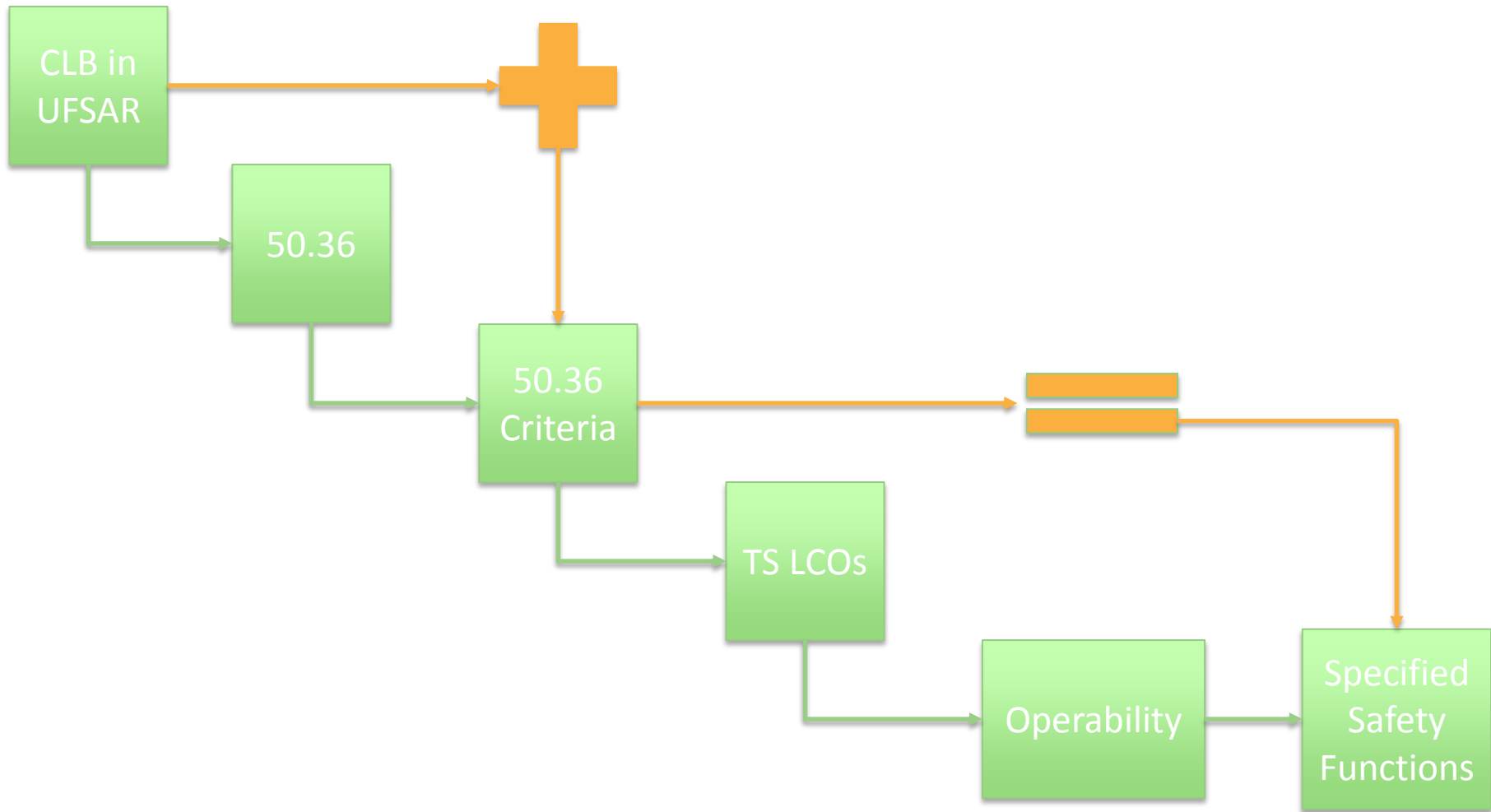
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- The NRC's 1993, "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors," provided criteria that clarified what portions of the safety analysis report should be reflected in the TS.
 - Added to 10 CFR 50.36 in 1995.

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- Most TS systems meet Criteria 2 or 3:
 - An initial condition or system that mitigates a DBA or transient, as described in Chapter 6 or 15 of the UFSAR.
- We see a link between a plant's design and licensing basis, as described in Chapters 6 and 15 of the UFSAR, with the LCOs in TS and the specified safety functions required for operability.

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- That logic has been used by the NRC in the past.
 - The NRC's response to TIA 2009-02, "Requirements for Testing Station Batteries for Station Black-out Conditions at the San Onofre Nuclear Generating Station," (ADAMS ML12109A349) discusses that not all design functions are TS functions:
 - "In accordance with 10 CFR 50.36, TSs are derived from the analyses and evaluation in the safety analysis report and TS testing is for structures systems and components that meet one or more criterion in 50.36(c)(2)(ii). SBO equipment is not represented in SONGS' FSAR Chapters 6 and 15; therefore the capability of this equipment to meet the coping strategies of the SBO rule would not be tested in accordance with TS."

EXAMPLE



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Questions and Discussion