



AREVA

forward-looking energy

CoC 1004 Amendment 16 NRC Pre-Application Meeting

Don Shaw
TN Americas Licensing Manager

TN Americas LLC

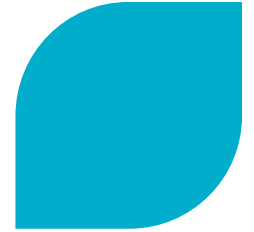




TN Presentation Agenda

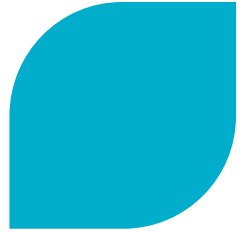
- ▶ **Background**
- ▶ **Approach / Anatomy of the Amendment 16 Application**
- ▶ **Observations / Challenges**
- ▶ **Progress To-Date / Plan**
- ▶ **Initial Partial High-Level Results of Proposed Movements**
- ▶ **Fee Waiver**
- ▶ **Questions**

Background



- ▶ **Regulatory Issue Resolution Protocol Item for Improving the Part 72 Regulatory Framework (RIRP-I-16-01)**
- ▶ **Multiple NRC / NEI / Industry Workshops occurred in 2016 and 2017**
- ▶ **TN Americas agreed to pilot the process**
- ▶ **May 12, 2017 Communication from NEI (Rodney McCullum) to NRC (Michael Layton) transmitted the latest status**
- ▶ **Key attachment to that May 12 communication - ISFSI LICENSE AND CASK CoC FORMAT, CONTENT, AND SELECTION CRITERIA (five-page document)**
 - ◆ **Background**
 - ◆ **CoC and Appendices Descriptions**
 - ◆ **Selection Criteria for Approved Contents (A1, A2, A3) and Limiting Conditions for Operation (LCOs) & Surveillance Requirements (SRs) (L1, L2, L3)**
 - ◆ **Evaluation table (split table), including risk-insight questions**

Background (continued)



New Format for the CoC and Appendices

- ◆ **CoC Body - Certified Design**
 - **Section I, Technology**
 - **Section II, Design Features**
- ◆ **CoC Appendix A - Inspections, Tests, and Evaluations**
- ◆ **CoC Appendix B - Technical Specifications**
 - **Section 1, Definitions, Use and Application**
 - **Section 2, Approved Contents**
 - **Section 3, LCOs and SRs**
 - **Section 4, Administrative Controls**

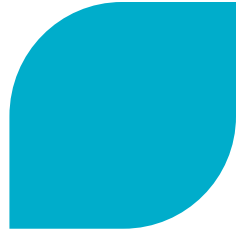
Background (continued)



Selection Criteria for Approved Contents

- ▶ **Criterion A1 - The characteristic or parameter is identified in 10 CFR 72.236(a);**
- ▶ **Criterion A2 - A characteristic or parameter for which verification is a necessary condition to provide reasonable assurance that the cask safety functions of confinement, sub-criticality, and shielding will be performed;**
- ▶ **Criterion A3 - A characteristic or parameter that has a significant impact on public health and safety, based on risk insights and expert knowledge.**

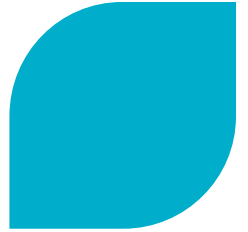
Background (continued)



Selection Criteria for LCOs/SRs

- ▶ **Criterion L1 - Installed instrumentation that is used to detect, and indicate a significant abnormal degradation of the cask confinement boundary;**
- ▶ **Criterion L2 - An initial condition of a design basis accident that either assumes the failure of or presents a challenge to the integrity of a fission product barrier;**
- ▶ **Criterion L3 - A structure, system, or component that has a significant impact on public health and safety, based on risk insights and expert knowledge.**

Background (continued)

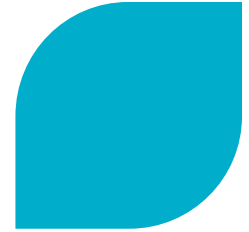


Split Table Guidance

- ◆ Each existing individual CoC requirement receives a written evaluation against the CoC format and content guidance and selection criteria previously described using risk insights and expert knowledge.
- ◆ The results of that evaluation are recorded in a “split document” comprised of the table below.
- ◆ This table records the decision-making process and justification for deleting or retaining a CoC requirement or relocating it.
- ◆ Retained requirements may be moved to a different section of the CoC and/or partially retained.
- ◆ Removed or relocated requirements will defer to the regulations directly, be moved to the cask FSAR (if not already there), or deleted entirely, with appropriate justification.
- ◆ The basis for the determination of each CoC requirement is documented in the “Evaluation Summary” column.

TN Americas ... Be certain.™

Background (continued)



Split Table (first page)

CASK CoC FORMAT, CONTENT, AND SECTION CRITERIA EVALUATION

CoC Requirement (Examples)	CoC Body Certified Design		Appendix A Inspections, Tests, and Evaluations	Appendix B, Technical Specifications							
	Section I. Technology	Section II. Design Features		Section 1 Definitions, Use and Application	Section 2, Approved Contents (Selection Criteria)			Section 3, Limiting Conditions for Operation (LCOs)* and Surveillance Requirements (SRs) (Selection Criteria)			Section 4, Administrative Controls
					A1	A2	A3	L1	L2	L3	
CoC Condition No. X											
CoC Condition No. Y											
LCO No.											
Administrative Control No.											
Approved Contents No.											
Design Feature No.											

* All LCOs also require an Applicability, Condition(s), Required Action(s), Completion Time(s), Surveillance Requirement(s), and Frequency(ies). Refer to NUREG-1745 for additional guidance.

Background (continued)



Split Table (second page)

CASK CoC FORMAT, CONTENT, AND SECTION CRITERIA EVALUATION

CoC Requirement (Examples)	Risk Insight**: Will retaining or removing this requirement from the CoC result in...			Evaluation Summary
	...a significant increase in the probability or consequences of an accident previously evaluated in the cask FSAR?	...the possibility of a new or different kind of accident being created compared to those previously evaluated in the FSAR?	...a significant reduction in the margin of safety for ISFSI or cask operation	
CoC Condition No. X				
CoC Condition No. Y				
LCO No.				

**** In performing the risk insight evaluation above, the evaluator should think about subsequent changes to a relocated CoC requirement. Specifically, ask the question “what is the likelihood and worst possible consequences of a future change to this requirement in the less-conservative direction?”**

Approach / Anatomy of the Amendment 16 Application



TN turned the RIRP split table into a form - Why?

- The Evaluation Summary table blocks would have made the table very long and likely unwieldy
- A form for each CoC condition/TS requirement helps to focus on the single item at hand
- Submittal will be electronic so having (likely) many dozens of forms will not be burdensome
- An enclosed table showing the overall results will be included, for a convenient and quick assessment of the proposed movements

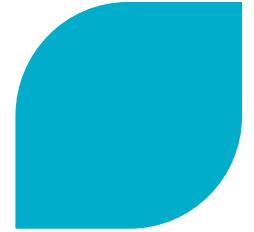
Approach / Anatomy of the Amendment 16 Application Split Table as a Form



CoC Requirement		
CoC Body Certified Design	Section I. Technology	
	Section II. Design Features	
Appendix A - Inspections, Tests, and Evaluations		
Appendix B. Technical Specifications	Section 1 Definitions, Use and Application	
	Section 2 Approved Contents (Selection Criteria)	A1
		A2
		A3
	Section 3 Limiting Conditions for Operation (LCOs)* and Surveillance Requirements (SRs) (Selection Criteria)	L1
		L2
		L3
Section 4 Administrative Controls		
Risk Insight**: Will retaining or removing this requirement from the CoC result in...	A significant increase in the probability or consequences of an accident previously evaluated in the cask FSAR?	
	The possibility of a new or different kind of accident being created compared to those previously evaluated in the FSAR?	
	A Significant reduction in the margin of safety for ISFSI or cask operation?	
Evaluation Summary		

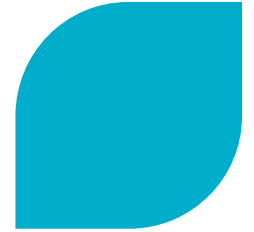
TN Americas ... Be certain.™

Approach / Anatomy of the Amendment 16 Application



The Split Table Forms

- **The forms will account for each CoC Condition and each TS requirement**
- **Some forms will cover multiple items**
- **Some items will need multiple forms (sometimes a new TS paragraph is an entirely new requirement)**
- **The goal is to facilitate NRC review of these initial proposed results**



Approach / Anatomy of the Amendment 16 Application

CoC / TS / UFSAR Parts of the Initial Submittal

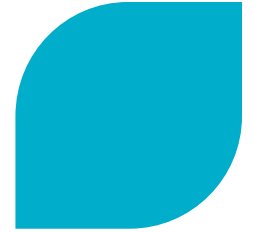
First phase of this pilot RIRP amendment application will involve TN / NEI / industry proposed CoC / TS item movements

NRC reaction will then involve discussion, decisions, and potential changes to the movement results

Therefore, the CoC and TS documents will not be word processed at this point (very labor-intensive effort, particularly the CoC 1004 TS document)

Once general agreement is obtained, subsequent submittals will include the proposed word-processed CoC / ITE / TS / UFSAR parts

TN Americas ... Be certain.™



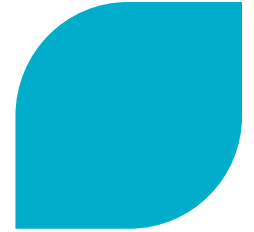
Approach / Anatomy of the Amendment 16 Application

CoC / TS / UFSAR Parts of the Initial Submittal

Exceptions to this:

- **Items that are proposed to be condensed will have an attachment to the form showing the suggested concise information.**
- **The attachment will provide the information, but it will not look like a CoC page or a Tech Spec page.**

Approach / Anatomy of the Amendment 16 Application

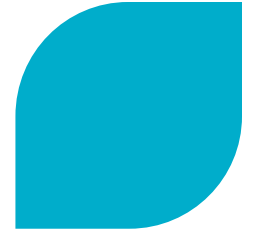


Planned Enclosures

1. The five-page enclosure from the May 12 NEI communication.
2. The high level results table.
3. The split table forms, in CoC Item / TS Item order.
4. Certificate of compliance document CoC 1004 Amendment 14 (Amendment 15 is currently under NRC review and no changes to the CoC are proposed for Amendment 15).
5. CoC 1004 Amendment 15 proposed Technical Specifications document.
6. Current UFSAR Chapters K.9, M.9, P.9, T.9, U.9, Y.9, and Z.9. These UFSAR chapters have TS incorporated by reference (IBR). TN intends to no longer have any TS IBR.

TN Americas ... Be certain.™

Approach / Anatomy of the Amendment 16 Application



How Will Amendments 15 and 16 Remain in Synch?

Because the Amendment 16 decisions involve the nature of the licensing basis information and not the particular quantitative values, it is likely that no Amendment 15 RSI / RAI changes will affect Amendment 16 decisions.

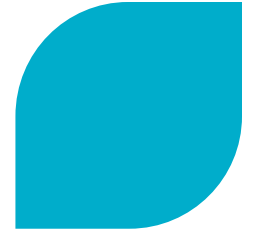
As Amendment 15 proceeds through the RSI / RAI stages, changes to the CoC / TS / UFSAR will be assessed for the need to submit a related Amendment 16 update.

Certainly the specific changed Amendment 15 information will be reflected in the final Amendment 16 licensing basis documents, including CoC 1004 renewal conditions (currently in Rulemaking).

TN Americas ... Be certain.™

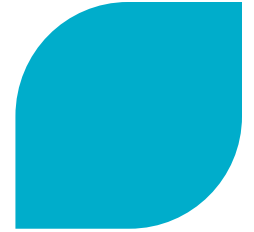
Observations / Challenges

Certain “changes” will be necessary



Although no design changes are allowed for this RIRP pilot, if the nature of an item changes, certain resultant changes will be needed.

- ▶ For example, CoC Condition 3a CASK, (proposed) disposition is “Replace with concise description of dry storage system.”
- ▶ Another example; items in the current TS Section 5.0 Administrative Controls that will become LCOs will need to have actions, completion times proposed, surveillance requirements – consistent with the LCO/SR TS format.

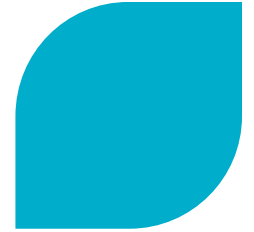


Observations / Challenges

Design Features Section of the CoC

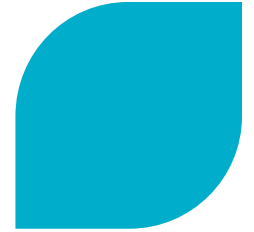
ASME Code Alternatives Tables

- **Currently the ASME Code alternatives tables are in Section 4 of the Tech Specs (Design Features)**
- **Logically they will move to CoC Section II (Design Features)**
- **These tables take up 30 pages in the current Tech Specs**
- **The CoC document should maintain its historical small size.**
- **Likely we will recommend that CoC Appendix C (new) contain the ASME Code alternatives.**



Observations / Challenges ITE versus LCO

- ▶ ITE items and LCO items have a similar definition / concept (details on next slide)
- ▶ Part 72 LCOs often are ‘one-time’ requirements during fuel loading (none of the current CoC 1004 LCOs continue beyond a few days into STORAGE OPERATIONS)
- ▶ Certain manufacturing steps (e.g., closure welds and their NDE) are performed during fuel loading

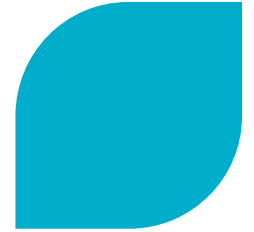


Observations / Challenges

ITE versus LCO (continued)

ITE - Inspections, Tests, and Evaluations, and acceptance criteria, that are necessary and sufficient to provide reasonable assurance that, if the ITE are performed and the acceptance criteria met, a cask has been manufactured and will operate in conformance with the certified design, and that the safety functions of confinement, sub-criticality and shielding will be performed.

LCO - Limiting conditions are the lowest functional capability or performance levels of equipment required for safe operation of the ISFSI facility and cask. Functional and operating limits for a cask are limits on fuel handling and storage conditions that are found to be necessary to protect the integrity of the stored fuel, to protect employees against occupational exposures and to guard against the uncontrolled release of radioactive materials. Monitoring instruments and limiting control settings for casks are those related to fuel handling and storage conditions having significant safety functions.

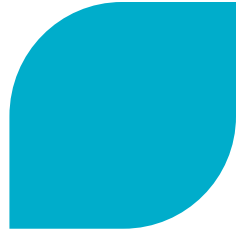


Observations / Challenges ITE versus LCO (continued)

- ▶ **Some existing TS items (it seems) could go either way – for example, these items, which are all currently in Section 5, Administrative Controls**
 - ◆ **PT of Canister closure welds**
 - ◆ **DSC closure weld leak testing**
 - ◆ **Transfer Cask / Canister lifting heights limits**
 - ◆ **Transfer Cask alignment with the Horizontal Storage Module**

Observations / Challenges

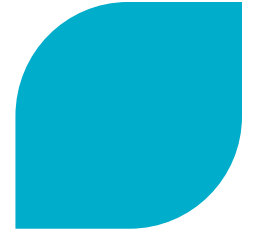
The Risk Insight Questions



Here are the questions:

Risk Insight:** Will removing this requirement from the CoC / TS result in...

- ◆ A significant increase in the probability or consequences of an accident previously evaluated in the cask FSAR?
- ◆ The possibility of a new or different kind of accident being created compared to those previously evaluated in the FSAR?
- ◆ A significant reduction in the margin of safety for ISFSI or cask operation?



Observations / Challenges

The Risk Insight Questions (continued)

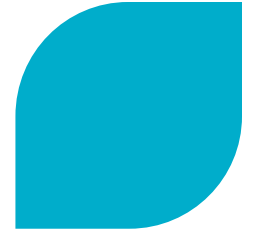
Risk Insight Questions vs A1, A2, etc.

For a situation clearly associated with Approved Contents or LCOs / SRs:

- ▶ **If a risk insight question has a YES, it is likely that A1 or A2 or L1 or L2 (the fairly specific criteria items) already have a YES also.**
- ▶ **If a risk insight question has a YES and neither A1 nor A2 nor L1 nor L2 has a YES, A3 or L3 (the more general criteria items) must be YES, by definition.**

Observations / Challenges

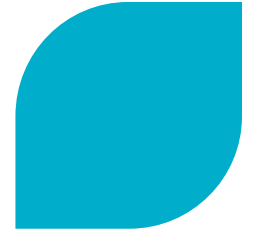
The Risk Insight Questions (continued)



Risk Insight Questions vs Design Features, ITE, etc.

For a situation not associated with Approved Contents or LCOs / SRs:

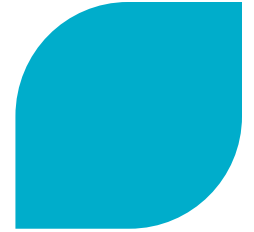
- ▶ Although the Design Features, ITE, etc. do not have defined decision criteria, they are defined and items meeting those definitions must be included in those sections.
- ▶ For these situations, if a risk insight question has a YES, one of these non-Approved Contents / LCO / SR areas must be YES, by definition.



Observations / Challenges The Risk Insight Questions (continued)

So for any Risk Insight Question with a YES:

- ▶ **The CoC condition / TS item is kept in the CoC / ITE / TS,**
- ▶ **It is not moved to the UFSAR,**
- ▶ **It is not removed entirely (unless it is redundant and therefore already accounted for).**



Progress To-Date / Plan

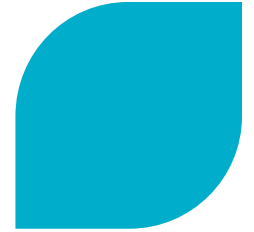
- ▶ **TN first assessed and generated forms for all CoC conditions, all TS items generic to every DSC, and all TS associated with our latest design, the 37PTH DSC system**
- ▶ **These results were shared with industry personnel on June 6th**
- ▶ **As we continue to receive feedback from the industry we have continued to generate additional forms**
- ▶ **We intend to make final dispositions by Friday June 23rd and wrap up / submit the amendment application by June 30th**

Initial Partial High-Level Results of Proposed Movements (37PTH System and Generic Items)



Current Location/ Proposed Location	CoC Body		Appendix A Inspections, Tests, and Evaluations	Appendix B. Technical Specifications							UFSAR	Completely Removed	
	Section I. Technology	Section II. Design Features		Section 1 Definitions, Use and Application	Section 2. Approved Contents			Section 3. Limiting Conditions for					Section 4 Administrative Controls
					A1	A2	A3	L1	L2	L3			
CoC Conditions	2 reduced LOD										2	3	5
TS Section 1 Defn etc.				4									
TS Section 2 Approved Contents					2	3							1
TS Section 3 LCO									5				
TS Section 4 Design Features		7	3 + 1 reduced LOD		1							1	6
TS Section 5 Administrative Controls			2						3	1	7	8	3
TS Tables					2	2 partials						6 + 1 partial	1 partial
TS Figures					2	2							
		= not changing		LOD = Level of Detail									

TN Americas ... Be certain.™



Fee Waiver

- ▶ **TN is investing a significant amount of resources in this amendment.**
- ▶ **Cost savings will be realized by the industry when the industry implements the anticipated right-sized and reorganized CoC conditions, ITE, and Technical Specifications.**
- ▶ **NRC resource savings will be realized by reduction in the review time in reviewing future amendments.**
- ▶ **Accordingly, our application letter will request that NRC review fees be waived for this particular licensing action.**

Questions



TN Americas ... Be certain.™