

NEI Dry Storage Task Force Meeting with NRC

Nuclear Energy Institute

November 20, 2009



Agenda

- **DSTF composition and mission**
- **Path to resolution of issues**
- **Issues matrix and priorities**
- **Discussion of specific issues**



DSTF Composition

- **Comprised of about 120 individuals representing:**
 - **Licensees with used fuel on site**
 - **Used fuel storage system and transportation package CoC holders**
 - **EPRI**
 - **Consultants (case-by-case)**



3

DSTF Mission

- **Identify and facilitate the resolution of generic issues pertaining to dry used fuel storage and transportation**
 - **Lead industry interface with NRC and among members**
 - **Resolve generic technical and regulatory issues**
 - **Share lessons learned**
 - **Support other industry groups on request**



4

DSTF Steering Group

- **Comprised of about 30 DSTF members**
- **Chaired by NEI**
- **CoC holders and users' group chairpersons are permanent members**
- **Directs DSTF activities and priorities**
- **Coordinates industry participation in DSTF**



5

DSTF Steering Group (cont'd)

- **Meets four times per year**
 - **November**
 - **February**
 - **May (at Dry Storage Information Forum)**
 - **August**
- **Meets with NRC as needed**



6

Issues Matrix

- **Informal NEI document that lists regulatory and technical issues related to dry storage and transportation**
- **Industry and NRC are willing to commit dedicated resources to resolve issues on matrix**



7

Industry DSTF Issue Teams

- **Smaller groups with appropriate knowledge to address a specific issue**
- **Goal is to resolve issues using existing regulatory processes**
- **NEI facilitates conference calls, team meetings, and NRC interface**



8

Issue Resolution

- **NEI Regulatory Issue Resolution Protocol which is currently being piloted with NRR could be used**
- **Each issue is evaluated and a path to generic resolution formulated**
- **Resolution to issues must be durable**



9

Issue Identification

- **Industry has currently identified potential issues in the following areas**
 - **Insufficient regulatory guidance or regulation**
 - **Unknown generic impact from NRC interaction with general licensee**
 - **Industry interpretation of NRC guidance**
 - **NRC review/endorsement of NEI guidance**



10

Potential Issues for Matrix

- **Industry priority indicated by position in list; first issue = highest priority**
 - **CoC Improvements**
 - **PWR Fuel Top Nozzle Stress Corrosion Cracking**
 - **BWR CILC Fuel**
 - **72.48 Guidance Update**
 - **CoC LAR Guidance**
 - **Intact/Damaged Fuel Implementation**
 - **Burnup Credit/High Burnup Fuel**



11

Discussion of Potential Issues



12

CoC Improvements

- **No Part 72 rule governs cask CoC content**
 - **Conditions, TS, Approved Contents, Design Features**
- **§72.44(c) and (d) do not apply to CoC holders or general licensees (per §72.13)**
- **No specific criteria exist for defining cask CoC contents, including TS**
- **NUREG-1745 provides a baseline and overall goals, but not criteria**
- **Without defined criteria, NRC review guidance is subjective**



13

Background from §50.36 Final Rule 60 FR 36953 (1995)

- **“Technical specifications cannot be changed by licensees without prior NRC approval. However, since 1969, there has been a trend toward including in technical specifications not only those requirements derived from the analyses and evaluation in the safety analysis report but also essentially all other Commission requirements governing the operation of nuclear power reactors. This extensive use of technical specifications was due in part to a lack of well-defined criteria (in either the body of the rule or in some other regulatory document) for what should be included in technical specifications. Since 1969, this use has contributed to the volume of technical specifications and to the several-fold increase in the number of license amendment applications to effect changes to the technical specifications. It has diverted both NRC staff and licensee attention from the more important requirements in these documents to the extent that it has resulted in an adverse but unquantifiable impact on safety.”**



14

Draft Standard Review Plan

- **Draft NUREG-1536 Revision 1 :**
 - **Introduction: “Any aspect of the design or procedures that the NRC determines should not be changed by either the certificate holder or general licensee, without prior NRC approval must be placed in the CoC conditions or technical specifications”**
 - **Section 8.4: “any technical aspect of the design which is deemed critical to nuclear safety must appear in the TS”**

15

Draft Standard Review Plan (cont'd)

- **Draft NUREG-1536, Revision 1, Section 13.1:**
 - ***“IF A REVIEWER DEEMS AN ITEM SO IMPORTANT THAT IT SHOULD NOT BE CHANGED WITHOUT NRC STAFF APPROVAL, THE ITEM SHOULD EITHER BE INCLUDED DIRECTLY IN THE COC TERMS, CONDITIONS, OR SPECIFICATION”***
 - ***“ONLY THE TERMS AND CONDITIONS OF THE COC, INCLUDING THE ATTACHED TECHNICAL SPECIFICATIONS AND DRAWINGS, ARE LEGALLY ENFORCEABLE”***
 - *Emphasis (capitalization) present in draft NUREG*

16

CoC Improvement Issue

- Increasing CoC requirements over time
- Some requirements are redundant or unnecessary, e.g.:
 - TS requiring compliance with regulations
- Unnecessary requirements cause NRC and industry resources to be used to process non-safety significant CoC amendments
- Unusual CoC requirements can confuse licensed operators used to Part 50 TS

17

CoC Improvement Issue – Example 1

- *NRC - Revise Technical Specifications to clarify that any changes to the SAR, including the TS bases, shall be provided to the NRC in accordance with 10 CFR 72.48*
 - 10 CFR 72.48 requires a biennial report to NRC describing changes and summarizing 72.48 evaluations
 - 10 CFR 72.248 requires biennial FSAR updates to NRC, including 72.48 changes
 - Regulations are clear; no TS needed.

18

CoC Improvement Issue – Example 2

- **Lack of criteria yields inconsistent standards - the following have not being requested uniformly in all licensing actions**
 - *NRC - The credit taken for the efficacy of Boral neutron absorbers (75%) should be explicitly stated in the Technical Specifications*
 - *NRC - Provide proposed language for the Technical Specifications to specify the grade of boron carbide powder used in the neutron absorbing materials*



19

CoC Improvement Resolution Path

- **Industry is willing to engage NRC in creating criteria for CoC content**
- **Would resolution of this issue benefit from a Commission policy statement?**
- **Is rulemaking appropriate?**
- **Next action?**



20

PWR Top Nozzle SCC Issue

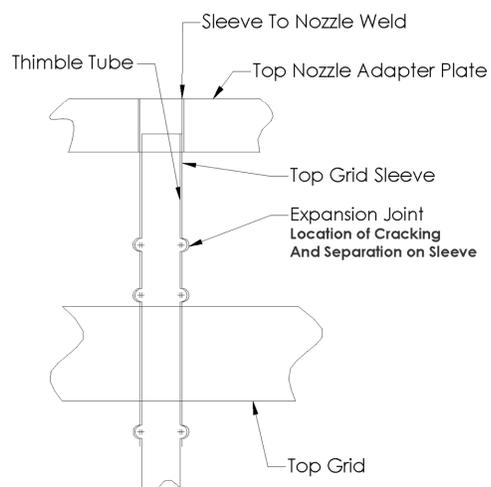
- **What is the generic impact of NRC interaction with one general licensee**
 - 9/11/07 Catawba inspection report
 - 8/13/09 McGuire letter
- **NRC communication to general licensee (not CoC holder) “Until such an analysis is conducted and reviewed by NRC...”**



21

PWR Fuel Top Nozzle SCC Issue

- **Zircaloy guide tube resides inside 304 SS top grid sleeve between top nozzle and top grid**
- **“Bulge joints” allow for grid/sleeve thermal expansion**
- **Materials and service conditions resulted in potential for stress corrosion cracking at bulge joints**
- **Corrosion at bulge joints can lead to separation of top nozzle from fuel assembly when lifted**



22

PWR Fuel Top Nozzle SCC Issue

- **All Westinghouse fuel fabricated before 1985 susceptible**
- **>10,000 assemblies**
- **Possible handling options include:**
 - **Thimble grip handling tool**
 - **Guide tube anchors**
 - **Instrument Tube Tie-Rods**
- **Other options may be available**

23

PWR Top Nozzle SCC Issue

- **Numerous plants affected; one is permanently shut down and must place this fuel into dry storage and make transport-ready in the very near future**
- **Many plants have delayed dealing with susceptible fuel**
- **Running out of other fuel to load for storage**

24

PWR Top Nozzle SCC Issue Resolution Path

- **NRC clarifies intent of previous communications**
- **Industry believes guidance permits**
 - **Classify as damaged or undamaged based on functional evaluations; ANSI N14.33 and ISG-1, Rev 2**
 - **Damaged fuel will be canned**
 - **Anchors, ITTRs, or similar unirradiated hardware do not require NRC approval as cask contents**
- **NRC verifies user implementation by inspection**



25

BWR CILC Fuel Issue

- **Industry believes it is prudent to discuss if BWR CILC fuel issue should be on issues matrix based on interaction with NRC on Westinghouse SCC issue to date**
- **Industry's view is that this issue does not belong on issues matrix**
- **How to proceed?**



26

BWR CILC Fuel Issue

- **CILC – Crud-Induced Localized Corrosion**
- **Affects BWR fuel; primarily due to copper condenser tubes**
- **At least seven plants affected (>5,000 assemblies)**
- **Some CILC fuel has been evaluated and loaded into storage casks as intact**
- **Fundamentally, a damaged fuel classification issue**

27

BWR CILC Fuel Issue Resolution Path

- **Use ANSI N14.33, informed by ISG-1, Rev. 2 to develop user classification protocol**
 - **It's either damaged or undamaged**
- **Fuel manufacturer and CoC holder assist with fuel-specific and system-specific functional criteria and evaluations**
- **Damaged fuel will be canned**
- **NRC verifies user implementation by inspection**

28

72.48 Guidance Update

- **New NEI document to replace NEI 96-07, Appendix B**
- **Will request NRC endorsement of changes via revision to RG 3.72**
- **First draft out for industry review**
- **Keeping NEI LATF and USA/STARS 50.59 Project informed**
- **Resolve industry comments 1Q 2010 and provide to NRC for comment**

29

72.48 Guidance Update

- **Improve guidance on process issues unique to Part 72, e.g.:**
 - **212 Report, no Maint. Rule exemption**
- **Improve Applicability Determination guidance**
- **Use enforcement experience to clarify guidance where needed**
- **Address issues where industry and NRC appear to have differing opinions**

30

CoC LAR Guidance

- **Proposed NEI guidance submitted to NRC in April, 2009**
- **Awaiting NRC feedback**



31

Intact/Damaged Fuel Implementation

- **Inclusion of this issue on issues matrix is dependent on outcome of Westinghouse SSC and BWR CILC fuel issues**
- **Damaged fuel first generically licensed for storage and transport in 2000**
 - **CoCs include definitions of intact fuel, damaged or failed fuel, and/or fuel debris**
- **Different 71 and 72 CoCs have different and changing definitions**



32

Intact/Damaged Fuel Implementation

- **ANSI N14.33 offers good flexibility for licensees and aligns well with ISG-1, Rev. 2**
 - **Allows CoCs to simply require damaged fuel to be canned**
 - **Classification protocol can be controlled in (F)SARs and change as guidance evolves**
- **Need to ensure intact fuel previously loaded remains transportable**



33

Burnup Credit and High Burnup Fuel

- **Burnup Credit**
 - **EPRI work**
 - **Tracking broader efforts in this area (Part 50 and others)**
 - **Next step to be determined**
- **High Burnup Fuel**
 - **EPRI work**
 - **Next step to be determined**



34

Conclusions

- **Action items?**
- **Next meeting?**

