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MEMORANDUM TO: Doug W. Weaver, Deputy Director
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SUBJECT: SUMMARY OF AUGUST 16-17, 2012, MEETING TO OBTAIN
STAKEHOLDER FEEDBACK ON ENHANCEMENTS TO THE
LICENSING AND INSPECTION PROGRAMS FOR SPENT FUEL
STORAGE AND TRANSPORTATION UNDER 10 CFR PARTS 71
AND 72

Background

On August 16-17, 2012, the U.S. Nuclear Regulatory Commission (NRC) staff held a meeting to solicit stakeholder input in identifying enhancements to the current licensing and inspection programs for storage and transportation of spent nuclear fuel under the requirements of 10 CFR Parts 71 and 72. The staff is engaged in this activity as part of the project plan for program enhancements as described in COMSECY-10-0007 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML101390216). The staff will use the information obtained from this meeting to enhance storage and transportation regulations in 10 CFR Parts 71 and 72, the associated guidance, and/or licensing and inspection processes.

The meeting was sponsored and conducted by staff in the Division of Spent Fuel Storage and Transportation. Issue Summaries on the meeting topics were published on the meeting website (<http://www.nrc.gov/public-involve/conference-symposia/2012-sfst-lic-process-conf.html>) in advance of the meeting, for stakeholders to read and consider before the meeting and to come prepared to discuss the issues. The meeting topics included:

- Overview: Improving the Spent Fuel Storage and Transportation Regulatory Framework
- Compatibility of Requirements for Storage and Transportation of Spent Nuclear Fuel – Retrievability, Cladding Integrity, and Safe Handling
- Regulating Stand-Alone Independent Spent Fuel Storage Installations
- Applicability, Compatibility, and Consistency of Spent Fuel Storage Requirements and Guidance for Specific Licensees, General Licensees, and Certificate of Compliance Holders
- Administration of Storage Certificate of Compliance (CoCs) and Amendments to CoCs
- Spent Fuel Storage and Transportation Inspection Enhancement Initiative Update

The final meeting agenda is located at ADAMS Accession No. ML12216A347. The Issue Summaries are located at ADAMS Accession Nos. ML12220A552, ML12220A538, ML12220A521, and ML12223A458. The presentation materials are located at ADAMS Accession No. ML12222A019. The transcript is located at ADAMS Accession No. ML12235A175. The above materials are also posted on the meeting website, located at <http://www.nrc.gov/public-involve/conference-symposia/2012-sfst-lic-process-conf.html>.

Discussion

Mr. Mark Lombard, Director of the Division of Spent Fuel Storage and Transportation (SFST) in the Office of Nuclear Material Safety and Safeguards (NMSS), provided the welcoming remarks. Mr. Lombard shared NRC's independent regulatory perspective and outlined the purpose and objectives of the meeting. Mr. Lombard also provided a broad overview of NRC's current regulatory activities related to spent fuel storage and transportation, including waste confidence, the extended storage and transportation (EST) review and NRC's response to the Fukushima-Daiichi accident.

The meeting topical sessions are summarized below.

Overview: Improving the Spent Fuel Storage and Transportation Regulatory Framework

NRC Presentation

NRC staff provided an overview of the current regulatory framework, key storage and transportation regulatory activities, and the new paradigm for spent fuel storage and transportation, given the evolution of the National policy on the backend of the fuel cycle. Although experience has demonstrated the safety provided within the current regulatory framework, it has also indicated opportunities for improved integration, efficiency, and effectiveness.

The staff provided an overview of the staff's review process for the licensing and inspection program review, including key milestones for the reviews, next steps, and opportunities for stakeholder involvement. The staff summarized the previous July 27, 2011, public meeting on the licensing and inspection program review (<http://www.nrc.gov/public-involve/conference-symposia/2011-lic-process-conf.html>), the stakeholder input received at that meeting, and how it was considered in development of topics for this meeting. As all of the issues are connected and interrelated, the staff plans to analyze all of the issues holistically to determine the best approach to improving the current regulatory framework.

The staff discussed how success in the regulatory framework improvements should be defined, offering that: the framework maintains continued safety; regulatory policy issues in the new paradigm are successfully identified and resolved; regulatory improvement areas from two decades of experience are addressed for improved effectiveness; and the framework remains flexible for new technologies and future changes in the National spent fuel management policy.

Stakeholder Comments and Discussion

Industry stakeholders noted that any changes to the regulatory framework should be risk-informed. They noted that NRC should consider how Part 50 facilities deal with risk, including how they handle their cask loading campaigns. They also mentioned that there are qualitative ways to look at risk, and not only a quantitative probabilistic risk assessment. A stakeholder

commented that the framework should be performance-based to allow flexibility in implementation, as the National policy on spent fuel management evolves. An Electric Power Research Institute (EPRI) stakeholder welcomed NRC research and funding for research to “develop” a technical basis for EST rather than just “confirm” the technical basis.

Compatibility of Requirements for Storage and Transportation of Spent Nuclear Fuel – Retrievability, Cladding Integrity, and Safe Handling

NRC Presentation

The staff is evaluating the compatibility and integration of storage and transportation regulatory frameworks. At the July 27, 2011, public meeting, staff received stakeholder input that it should address several issues prior to evaluating the integration and compatibility of the regulatory frameworks for storage and transportation, including retrievability, burnup credit, and moderator exclusion. Staff is reviewing its policies, regulations, guidance, and technical needs to address retrievability (which includes cladding integrity and safe handling) as the lead issue.

The current framework was established at a time when licensees were only considering storage of low burnup fuel for periods of 20-40 years. However, given the changes in National policy on managing the backend of the fuel cycle, staff is assuming: longer storage durations than originally anticipated; uncertainties with how fuel (especially high burnup fuel) and storage systems will perform over longer periods of time; transportation of sealed canisters that have been in storage for many years; and potential future handling and repackaging of fuel, including who will handle/repackage and when.

The staff presented some considerations for stakeholder discussion, including: maintaining fuel assembly integrity for flexibility in ultimate disposition; maintaining cladding integrity as a primary fission product barrier for safe handling; and operational considerations, including associated risks and cost benefits (e.g., cost and worker dose to either repackage spent fuel or can fuel assemblies).

Stakeholder Comments and Discussion

Integration of Part 71 and 72 Regulatory Frameworks

Industry stakeholders commented that concurrent storage and transportation certification should not be required, and that the storage and transportation frameworks should continue to be separate, where industry can choose to seek dual-certification. Industry stakeholders commented that a retrievability requirement or concept should not be introduced into the transportation framework, and that the existing Part 71 requirements are sufficient, as they consider credible reconfiguration of the fuel and criticality control.

There was extensive discussion on the considerations regarding retrievability on an individual fuel assembly basis versus a canister basis.

Cladding Integrity as Defense-in-Depth

Most industry stakeholders support a canister-based retrievability approach. Under this approach, stakeholders commented that the canister would be relied on as the primary boundary for confinement, criticality, etc., but that practice should still strive to maintain fuel cladding integrity, by maintaining requirements and safe practices to maintain temperature limits below the threshold for cladding damage. Maintaining cladding integrity would be a “defense-in-depth” approach to safety. Stakeholders commented that spent fuel may be able to be handled

safely, even if it's not through "normal means." A stakeholder commented that NRC should consider whether retrievability is a safety function, as opposed to a flexibility and cost consideration, and whether safety functions can be met through other means.

Risk – Dose and Repackaging

Stakeholders discussed the risks of the two approaches – canister-based and assembly-based retrievability. Industry stakeholders noted that if a fuel assembly-based retrievability approach is maintained, there is an increased dose to utility workers to can individual fuel assemblies where cladding integrity may not be able to be demonstrated, and this approach would result in more canisters, casks, or packages that would eventually need to be handled, stored, and transported. Other stakeholders noted that the canister-based retrievability approach may result in an increased dose to workers who may need to repackage potentially damaged fuel at a future hot cell facility.

An industry stakeholder discussed repackaging considerations for the two retrievability approaches. For repackaging under a canister-based approach, a failed welded canister could be placed inside a sleeve or overpack, providing another confinement boundary. For repackaging under a fuel assembly-based retrievability approach, the canister welds would be cut, the lids removed, and the fuel assemblies transferred in a pool or in a dry transfer system. The stakeholder noted the risks are higher to open the canister and transfer the fuel to a new canister or package.

EST Research on Fuel Cladding

Stakeholders stated that even if NRC moves to a canister-based retrievability approach, research on the high burnup fuel cladding performance over time should continue, as well as research on canister performance. National lab and EPRI representatives briefly discussed plans for research on fuel performance. Industry stakeholders noted that work is ongoing with the U.S. Department of Energy (DOE) on an extended storage demonstration to provide information on performance of different fuel types and canister performance over time. This research would include creation of a hot cell capability for inspection of the fuel and canister.

Limiting Flexibility in Disposal

There was much discussion on the consideration of a canister-based retrievability approach limiting flexibility in future repository design and operation, and the impacts on National policy regarding the backend of the fuel cycle.

Some stakeholders stated that NRC policy on retrievability in storage may ultimately dictate repository design and operations. A National lab stakeholder noted the difficulties in addressing the cladding integrity issue for disposal – it is difficult to gauge the importance of maintaining cladding integrity, as the importance of the instant release fraction (immediate radionuclide release when cladding fails) in the dose assessment is unknown for a future repository and unknown geology.

A Nuclear Energy Institute (NEI) stakeholder noted that NRC should not focus on maintaining flexibility for the ultimate repository, as the progress on developing a repository is slow, and a potential design is far in the future. Whenever the repository is finally designed, it will need to be designed and engineered around the existing spent fuel storage regime, including possible direct disposal of the current storage canisters and systems. He commented that NRC should instead focus on assuring safety during storage and transportation phases. Once National policy decisions are made on the repository, then NRC could determine how to implement National policy through changes to the repository regulatory framework. Industry stakeholders

commented that a defense-in-depth approach to cladding integrity may not necessarily limit options for disposal.

Retrievability Considerations in Various Stages of Backend Model

Stakeholders commented on the difficulties of demonstrating fuel assembly-based retrievability for a potential second storage period, after transportation of high burnup fuel or fuel that may have been in storage for very long periods of time. Stakeholders noted that demonstration of retrievability on a canister-basis would be easier, in that a canister can be visually inspected and repaired, if needed, without the need to open the canister and repackage the fuel. A stakeholder commented that NRC should consider advantages of performance-based criteria on the cool-down period that fuel experiences through the various stages of the backend model of unknown length.

Implementation of Canister-Based Retrievability Approach

An industry stakeholder commented that if NRC changed its policy to a canister-based retrievability approach, implementation of the approach could be done through changes to guidance, and rulemaking may not be needed.

Stand-Alone Independent Spent Fuel Storage Installations (ISFSIs)

There was discussion of the retrievability approaches and potential future repackaging of loaded storage casks at ISFSIs at a decommissioned reactor site (“stand-alone ISFSIs”). An industry stakeholder commented that licensees are only responsible for at-reactor storage and are not responsible for transportation to a repository or possible centralized interim storage site. This is a DOE responsibility, and DOE would be responsible for any repackaging needed to be able to transport the stored fuel from the ISFSI site. The stakeholder noted that the regulations do not currently require sites to maintain any cask or fuel handling capability or facilities. Maintaining fuel handling capability at stand-alone ISFSIs was discussed, and it was recognized that the discussion was applicable to the topic of “Regulating Stand-Alone ISFSIs” (see summary below).

Regulating Stand-Alone ISFSIs

NRC Presentation

The staff presented background on the types of licensing and certification activities in Part 72 – specific license, general license, and CoCs (for dry cask storage system designs) that are used by the general licensee. The general license relies on the infrastructure associated with reactor operation, such as emergency planning, radiation protection, etc. NRC is using the term “stand-alone ISFSIs” to refer to ISFSIs at shutdown or decommissioned reactor sites, of which there are 10 currently.

The staff is looking at how the current regulatory framework applies to these stand-alone sites, as more stand-alone ISFSIs may exist in the future. The staff will review the Part 72 requirements for the general license and the underlying assumptions to determine whether the general license framework is appropriate for ISFSI sites that no longer have an operating reactor, as the Part 50 infrastructure has been largely dismantled, including structures, systems, and components that can be used to handle the spent fuel. The staff is also considering the applicability of certain Part 50 requirements to the stand-alone generally-licensed ISFSIs and will consider recently identified issues with exemption requests for these licensees.

Given the uncertainty regarding ultimate spent fuel disposition, the storage period may be longer than originally envisioned, and the associated aging management or repackaging needs at these sites is uncertain. Therefore, the staff will also consider whether the current regulatory framework adequately addresses fuel handling or cask unloading capability at these sites. The staff will also review plans at stand-alone ISFSIs for unloading, examination, or repackaging. The staff will also consider the Blue Ribbon Commission (BRC) recommendations related to stand-alone ISFSIs.

Stakeholder Presentation

Mr. Brian Rude, Vice President of Dairyland Power Cooperative (Dairyland), and representing the Decommissioning Plant Coalition (DPC), provided a presentation on this topical session. He noted that Dairyland's emphasis has always been on prompt removal of spent fuel from their La Crosse Boiling Water Reactor site, as their community never agreed to be a place for long-term storage of spent fuel. DPC participates in NRC's regulatory activities that impact the permanently shutdown facilities, and DPC sees increasing tendencies to apply long-term storage issues (issues raised during extended storage periods of 100-300 years) to the 20/40/60-year storage period. DPC worked with BRC on the recommendation to develop a consolidated interim storage facility (CIS), and that the spent fuel currently being stored at stand-alone ISFSIs should be first in line for transfer to a CIS. DPC feels that the Executive Branch and some in Congress are ready to act upon the BRC recommendation for a CIS, and DPC encourages NRC to focus resources to ready for and commence planning for the CIS and fuel removal from the stand-alone ISFSIs. DPC commented that NRC should be an advocate for a sensible forward-looking National policy based on safety and best practices, and that NRC should encourage the Administration and Congress to establish a CIS program promptly.

Stakeholder Comments and Discussion

Framing the Issue and the Staff's Considerations

Some stakeholders commented that it's not clear what is the issue or problem that the staff is trying to address regarding this topic. The staff provided additional background to clarify why it was considering this issue/topic. The staff noted that there were some past instances of leaking casks (bolted casks at Peach Bottom and Surry). Although there is no credible accident for welded canisters, if the fuel needed to be unloaded or examined for any reason (including to address or manage possible aging concerns, for unknown storage period durations), staff is examining what would be necessary at the ISFSI sites with no spent fuel pools. Also, a C-10 petition for rulemaking requested NRC to require a dry or hot cell transfer facility at the stand-alone ISFSIs, which has also prompted staff thinking on this topic.

There was also a beyond-design-basis event at North Anna, so "unforeseeable" events may occur, and staff wants to be proactive and consider this issue now rather than when it is urgent. The staff noted that it is not necessarily solving an immediate problem in this case, but is looking forward and considering potential problems we want to prevent, considering longer storage durations in the new paradigm and the possibility of more stand-alone ISFSIs in the future.

Industry Policies and Trends for Shutdown Reactors

NRC staff asked industry stakeholders whether they consider or have a policy of assuring the storage canister they use is transportable before the spent fuel pool is decommissioned. A NEI representative stated that industry's general strategy is to use welded canisters that are transportable (which is the case at the current stand-alone ISFSIs), and that will continue to be

the general strategy for the stand-alone ISFSIs. For a permanently shutdown reactor site that is storing spent fuel in bolted casks, the industry strategy would be for the licensee to maintain the ability to replace a failed seal, which could include maintaining a spent fuel pool or having a dry transfer facility. A DPC representative commented that there is no regulatory requirement to maintain fuel handling or cask unloading capabilities, or for the fuel to be stored in a transportable canister.

NRC asked industry stakeholders whether there is a trend for a shutdown reactor to maintain wet storage of fuel (rather than moving to dry storage), and if there are any technical issues that need to be addressed under that approach. An industry stakeholder noted they're not aware of any trend in that regard, and it depends on the individual licensee's timing and pace at which they move the spent fuel from wet to dry storage. The stakeholder noted that industry is not really considering extended wet fuel storage.

A DPC stakeholder mentioned that they are participating more actively in NRC rulemakings and guidance development, to make sure that NRC is considering whether or how the changes apply to stand-alone ISFSI sites.

Part 72 Specific License vs. Part 50 General License for Stand-Alone ISFSIs

An industry representative noted that they believe it is still appropriate for the stand-alone ISFSIs to maintain the general license, as long as they are meeting NRC requirements and maintaining safety, and there is no safety basis to force a generally-licensed stand-alone to obtain a Part 72 specific license. A DPC representative mentioned that it would be very costly to go through a relicensing process to change to a specific Part 72 license. His company chose to maintain the general license, although there have been some challenges with the current regulatory framework, including seeking numerous Part 50 exemptions for requirements not appropriate for a stand-alone ISFSI site. He believes NRC should not focus on why general and specific licenses are treated differently or which type of license should be maintained, but focus on making sure the framework is risk-informed for these sites.

A stakeholder noted that for a Part 50 licensee that is storing fuel under the general license to change to a specific Part 72 license, the current requirement for an opportunity for hearing in the Part 72 licensing process may not make sense, in that there shouldn't be any environmental impacts or safety concerns related to spent fuel storage in an ISFSI, that are new or different than those already analyzed for reactor operations. The stakeholder noted it may not be a good use of time and resources from a public health and safety perspective, and he commented that NRC should consider whether a general license could change to a Part 72 specific license, without the hearing process.

NRC staff provided a perspective related to why we are considering whether a general license is appropriate for a stand-alone ISFSI, noting that for a specific license application, we can look at the facility and the infrastructure as part of our licensing review. However, there is no licensing review related to the general license at a stand-alone site; NRC does review the cask CoC application, but the review is on the basis that the cask system can be used at many sites, and the review does not necessarily focus on site/facility infrastructure.

Unloading Requirements

There was some discussion on whether CoCs/Technical Specifications (TS) contained unloading provisions for only bolted systems or also welded canister-based systems. The staff noted that part of its review will be to look at the CoC/TS for the existing systems to see what

they currently require. Staff also mentioned that there are requirements in Part 72 related to unloading, so that is something staff is planning to look at.

Link to Retrievability

An industry stakeholder noted that if NRC goes to a canister-based retrievability policy, then there may not be a need to unload the canisters. If there was an issue with the canister confinement boundary, repairs could be made to the canister, or if repairs could not maintain the boundary, there is the possibility to put the canister into a new envelope/sleeve/overpack as previously discussed in the session on “Retrievability, Cladding Integrity, and Safe Handling.”

Precedents

There was some discussion of precedents and what was considered at the current stand-alone ISFSI sites, before structures, systems and components supporting fuel handling or cask unloading, were decommissioned. A stakeholder mentioned the Rancho Seco site, which had a Part 72 specific license for its ISFSI and was interested in decommissioning the remainder of the reactor site, including the spent fuel pool, so it could request termination of the Part 50 license. The stakeholder noted there was some early consideration of establishing some kind of dry transfer capability; however, the licensee instead decided to use a canister-based system that had a transportation certificate, so if there was an issue or problem with the canister, it could be placed in the certified transportation overpack that meets containment and other requirements for normal and accident transportation conditions. The stakeholder noted that at the time, there was not resolution on whether there needed to be a transportation overpack/package at every site, or just one that is maintained by a vendor or consortium of utilities where it could be deployed to “reconfine” the fuel if needed.

An industry stakeholder noted that NRC should consider the licensing precedent at Trojan, where there may have been a license amendment for their Part 72 specific license to remove all of the unloading requirements for their casks, in connection with decommissioning the spent fuel pool (noting that it was a different paradigm than today). Another stakeholder recommended looking at the Big Rock Point precedent.

Unique Considerations for Stand-Alone ISFSIs and Financial Assurance

A DPC representative noted that NRC should consider the uniqueness of the stand-alone ISFSIs, in that they are not generating any revenue from the sites, and it is difficult to justify the value that ratepayers are receiving for the ISFSI management expenditures. An industry stakeholder added that when NRC looks at financial assurance for this issue, it should consider that DOE has the contractual obligation to remove the fuel from the site, and that ratepayers have already been paying for those services.

Backfit

An industry stakeholder inquired whether NRC would conduct a backfit analysis if it was considering potential regulatory requirements to require fuel handling capability at stand-alone ISFSIs, and NRC responded that it would conduct a backfit analysis if it ended up recommending any changes to the regulations that would impose backfits.

C-10 Petition for Rulemaking

A stakeholder asked about the status of C-10 petition for rulemaking. Staff noted that it is still in the process of responding to the petition. Industry mentioned that rather than prescribing that the licensee maintain their spent fuel pool or construct a hot cell transfer facility, the focus should be on planning to be able to address unforeseen events, which could simply include using a system that is transportable.

Risk and Repackaging

An industry stakeholder commented that NRC consider the temporal aspect of degradation of a cask or some other issue that may require repackaging, noting that there would not be an immediate need to act and that there would be time to address the issue. A DPC stakeholder commented that there are no credible security-related or emergency-related scenarios that would result in an offsite release, for the system being used at his site. A stakeholder noted that a risk analysis may be needed to compare risks from operating an ISFSI site without wet pool capability versus a site with wet pool capability. There was discussion of repackaging at stand-alone ISFSIs in the “Retrievability, Cladding Integrity, and Safe Handling” session (see above summary).

Centralized Interim Storage

The staff asked stakeholders whether we need to improve the regulatory framework to support a CIS. Stakeholders responded that they don’t see a need for any changes to the regulatory framework in Part 72 to support or license a CIS. An industry stakeholder noted that if other things happen in conjunction with CIS (e.g., if National policy dictates that CIS occur in conjunction with recycling), NRC should think about what changes are needed to the regulatory framework to support those other areas.

A DPC stakeholder commented that NRC needs to change its mindset – instead of focusing on stand-alone sites storing fuel for hundreds of years, NRC should recognize the approaching reality of a CIS and focus its resources on that. Although NRC doesn’t set National policy, it does set safety policy and should consider what makes sense regarding having fuel handling facilities or capabilities at 10 stand-alone ISFSIs or one facility at a CIS. The stakeholder cautioned that in addressing this issue, NRC should not inadvertently contradict Commission policy that it does not endorse long-term on-site storage.

Aging Management

There was discussion of aging management for license and CoC renewals. A National lab stakeholder asked if stand-alone ISFSI licensees would wait to think about aging management once the renewal is approaching, or if these licensees are considering aging management from day one. He also noted concerns that stand-alone ISFSIs may not have the resources to manage aging issues.

A stakeholder questioned whether NRC was considering establishing different aging management requirements for stand-alone ISFSIs. The staff noted that it is not planning for it at this time, but noted that part of the review is to consider the infrastructure at these sites and the capability to complete any monitoring, surveillance, inspections, or potential mitigation strategies established in the renewal aging management plan. An industry stakeholder mentioned that the generally-licensed stand-alone ISFSIs would need to comply with the aging management plan associated with the renewal of the CoC it is using. If facilities or capabilities are needed to deal with any aging management requirements or mitigation strategies, the licensees would need to be prepared for that or request an exemption for some alternative approach. He noted industry does not foresee any aging management mitigation strategies that would require large fuel or cask handling facilities.

Applicability, Compatibility, and Consistency of Spent Fuel Storage Requirements and Guidance for Specific Licensees, General Licensees, and CoC Holders

NRC Presentation

Staff presented background on the topic, noting that because 10 CFR Part 72 addresses various licensing and certification requirements throughout, 10 CFR 72.13 (“Applicability”) was added to Part 72 to specify and map which regulations apply to a specifically-licensed ISFSI, a generally-licensed ISFSI, and a CoC. Because 10 CFR Part 72, Subpart K, provides a general license for storage of spent fuel in an ISFSI at power reactor sites, certain requirements for storage of spent fuel in a generally-licensed ISFSI are based in 10 CFR Part 50.

Because of requirements for specifically-licensed ISFSIs, generally-licensed ISFSIs, and CoCs are set forth in both Parts 72 and 50, there are questions regarding the applicability and consistency of requirements between Parts 72 and 50, and within Part 72. The staff and industry have also identified issues regarding the interface between the regulatory frameworks in Parts 50 and 72, in terms of implementation of the general license and CoC requirements, primarily during cask loading, unloading, and handling operations in the Part 50 facility. The staff will review both Parts 72 and 50 and guidance, to identify whether there are any improvements that can be made to ensure effective implementation of the regulatory framework.

The staff laid out some of the current staff considerations in this area, including further alignment of the requirements for specific licenses, general licenses, and CoCs, as appropriate. Staff will review requirements, including related Statements of Consideration, associated guidance, and staff interpretations, to determine if clarifications to specific regulations are warranted. The staff highlighted a few examples where clarifications could be made to certain regulations. The staff will also consider the need to develop guidance or update existing guidance to address some areas where there are questions or uncertainties with the regulatory framework.

Stakeholder Comments and Discussion

Standardized CoC Conditions and Technical Specifications

NEI stakeholders commented that the regulations should include criteria for what should be included in the CoC/TS, and NEI is considering submitting a petition for rulemaking on this subject. The stakeholders noted that there is a precedent in Part 50, where issues with the appropriateness of the level of detail in TS led to a rulemaking to include TS criteria in the regulations. The stakeholders commented that specifying the CoC/TS criteria in the regulations would create stability in the regulatory framework and help to address some of the implementation issues with the framework and administration of CoCs. The stakeholder noted that they don’t believe that updating guidance in NUREG-1745, “Standard Format and Content for Technical Specifications for 10 CFR Part 72 Cask Certificates of Compliance,” to specify CoC/TS criteria would be effective, and they think it is more appropriate for the CoC/TS criteria to be established in the rule.

Backfit Rule

An industry stakeholder commented that the backfit rule in 10 CFR 72.62, which currently applies to specific and general licensees, should also apply to CoC holders and CoCs. The industry stakeholder noted that NRC’s review for a CoC amendment request should focus on the changes proposed in the amendment request, and if the review challenges aspects that have already been reviewed and approved by the NRC, the backfit rule should apply to assure

focus on safety matters. Backfit also becomes an important consideration for the issue of streamlining the CoC amendment process and the idea of a “single certificate” or “single active amendment” approach (see following section on “Administration of Storage CoCs and Amendments to CoCs”).

Guidance Framework

An industry stakeholder commented that NRC should also consider how to improve the guidance framework. He believes that there is overlapping content between NRC’s Standard Review Plans (SRPs) for storage and transportation, and that the SRPs could potentially be streamlined. He commented that the overlap in SRPs has led to the persistence of the multiple interim staff guidance documents (ISGs), in that the ISGs need to be incorporated into all the SRPs before being retired.

A stakeholder noted that many CoCs have a requirement to evaluate fire and explosion hazards, and there is a need for guidance on how to evaluate these hazards for dry cask storage.

The staff asked stakeholders whether guidance was needed on meeting requirements in 10 CFR 72.212(b)(5)(ii) for ISFSI pad design and the structural and seismic analyses. Stakeholders commented that guidance was needed in this area, as well as guidance on seismic analyses related to a “stack-up” configuration. A stakeholder commented that a Regulatory Guide may be the appropriate guidance vehicle for this guidance. NRC staff noted that there are some current efforts underway to develop guidance on seismic analyses for ISFSI pad design and stack-up.

An NEI stakeholder noted that industry has been working on a revision to the industry guidance endorsed in Regulatory Guide 3.72, “Guidance for Implementation of 10 CFR 72.48, Changes, Tests, and Experiments,” and industry plans to submit the revision for NRC review and endorsement in the next couple months.

10 CFR 72.13 (“Applicability”) and Restructuring Part 72

Regarding the staff’s planned review of 10 CFR 72.13 to assure appropriate mapping of requirements for specific licensees, general licensees, and CoCs, an industry stakeholder commented that staff can look for inaccuracies in the mapping but may not be able to re-map §72.13 to change the applicability of Part 72 requirements. He noted that as part of its review, staff should consider the SOCs for various Part 72 rulemakings, in that 10 CFR 72.13 is a summary of the applicability of requirements and does not establish the applicability of requirements.

A stakeholder commented that restructuring Part 72 to group requirements in different areas may clarify the applicability of requirements. He also noted that restructuring Part 72 may eliminate the need for the complex §72.13 regulation. The stakeholder recognized the potential burden on stakeholders to learn, use, and implement a restructured Part 72. If restructuring was pursued, the stakeholder noted that a grandfathering provision for existing licenses and CoCs could be considered (where licenses and CoCs wouldn’t have to be rewritten to the new designation), but any new licenses or CoCs would need to reference the new rule designations.

A stakeholder noted his concern about restructuring Part 72 with new regulation designations and noted it would be a large burden for stakeholders familiar with and currently using the current structure/framework, as getting used to new designations is very difficult. It may create even more confusion, as there would be two (the old and new) sets of requirements and

regulatory designations. NRC staff noted that it is also concerned about and would consider carefully the burden. However, staff is also looking forward and thinking about whether there is a better way to do things and trying to reduce burdens for the licensing and certification actions in the future. The stakeholder noted that if NRC were making other major changes to the framework and our licensing and certification regulations, than perhaps NRC could consider adding a new Part to the regulations to distinguish it from the existing Part 72.

Risk-Informing the Regulatory Framework

NRC staff asked stakeholders how NRC should consider risk-informing, as it goes forward with its review of the regulatory framework. An NEI stakeholder responded that their main suggestion for risk-informing the regulatory framework would be CoC standardization. In establishing criteria for what needs to be in the CoC/TS, NRC should consider the level of detail that is appropriate for the risk of dry cask storage, so the right amount of detail is under NRC control. Also, if the 72.48 guidance is improved (allowing licensees to better manage what is under their control) in conjunction with that, it will result in a more risk-informed regulatory framework.

Specific Regulations that May Need Clarification

Stakeholders provided examples of specific areas and regulations in Part 72 that may need to be clarified.

A stakeholder noted that it is not clear whether a 10 CFR 72.48 evaluation must be conducted for the general licensee to change the 10 CFR 72.212 evaluation. NRC staff mentioned that a recent Regulatory Issue Summary (RIS-2012-05) was issued on this topic to clarify that a §72.48 evaluation would be needed to make a change to the Final Safety Analysis Report (FSAR) or the §72.212 evaluation after it has been completed. The stakeholder commented that although the RIS does clarify the issue, NRC staff should consider clarifying the language in the §72.212 regulation to eliminate any ambiguity.

An industry stakeholder commented that they don't see a benefit or need for the nameplate requirement in §72.236(k), and NRC staff should consider eliminating this requirement. The stakeholder also commented that NRC has eliminated the need for criticality monitoring in other parts of NRC's regulatory framework, based on analyses or other provisions, and NRC staff should consider whether the criticality monitoring requirements in §72.124(c) are necessary. A stakeholder suggested removing the requirement in §72.212(b)(6), for the general licensee to document the review of the SER (documenting NRC's review of the cask system the general licensee plans to use) in the §72.212 report, as the SER is not an enforceable document.

A stakeholder commented that the language in §72.212(b)(10) implies a new type of approval process for changes to reactor programs that decrease their effectiveness. The stakeholder suggested that §72.212(b)(10) point to Part 50 and require the general licensee to follow the Part 50 requirements for changes to the programs listed in §72.212(b)(10).

There was discussion on whether the language in §72.212(a)(3) regarding commencement of the general license needed to be clarified. A stakeholder commented that §72.210 makes it very clear that all Part 50 and Part 52 licensees are granted the general license, and that this language in §72.212(a)(3) is referring to a storage term for a particular cask that is used. Another stakeholder commented that clarification is needed, as questions have come up in industry, especially with new cask users, regarding when they need to implement certain requirements.

A stakeholder commented that NRC should consider reducing the timeframe in §72.248(a) (regarding when a CoC holder submits the FSAR after NRC has approved the cask design) from 90 days to 30 days. He noted that shortening the timeframe will help general licensees, who wish to use the CoC, in their dry cask storage preparations. He also commented that the 24-month clock (for FSAR updates) resets at that submittal time.

Administration of Storage CoCs and Amendments to CoCs

NRC Presentation

Staff provided background on the issue, noting that in 1990, 10 CFR Part 72 was revised to include the general license provisions in Subpart K and a process for certifying spent fuel storage cask designs in Subpart L. NRC uses the direct final rulemaking process to certify cask systems, issuing a CoC and subsequent amendments to CoCs. Approved CoCs and their approved subsequent amendments are added to the list of approved spent fuel storage casks and amendments in 10 CFR 72.214, for use by general licensees.

Since the promulgation of the general license framework, NRC has approved several dozen new cask systems and amendments to existing systems. There are no specific criteria or guidance for what constitutes a new CoC vs. what changes can be made to an existing CoC through the amendment process. The staff will consider whether there is flexibility under the current legal framework to conduct the cask certification process in a more efficient and expedited manner. The staff will consider developing criteria to define what constitutes the technical or regulatory basis of a new CoC (“technology”) and explore whether the complete direct final rulemaking process is needed for an amendment that does not alter the technical or regulatory basis of the “approved technology.”

NRC staff, CoC holders, and general licensees have identified errors in existing CoCs and CoC amendments, including nonsubstantive and editorial errors in TS documents. As rulemaking is required for any changes to the CoCs, including minor changes, staff is considering whether minor changes or corrections can be made to CoCs and amendments via a more streamlined process than direct final rulemaking.

Because CoC amendments do not necessarily encompass previously approved CoC amendments, each CoC amendment is treated as a “standalone” CoC. The staff will evaluate a “single certificate” approach where subsequent amendments would supersede previous amendments and consider whether this approach would allow efficiencies in approval of changes to approved CoCs and amendments. As part of this approach, the staff will consider how amended CoC provisions would be incorporated into previously issued CoCs or amendments, and how to address any technical or regulatory issues, including backfit implications and the impact on loaded casks.

Stakeholder Comments and Discussion

Technical Basis to Define a “Technology” / Rulemaking Process

An industry stakeholder noted that industry is discussing this idea of developing criteria to define what constitutes the technical or regulatory basis of a new CoC (of “technology”), and have some thoughts on high-level criteria, but there is still much to discuss. Another stakeholder commented that it is not an easy task to establish criteria for what constitutes a distinct “technology.” He provided an example where you may have different pieces of a system (as in the case of the multi-purpose canister systems), that are used across different CoCs – it is very

complicated to define what constitutes a new system or what should go forward as a CoC amendment in this case.

A stakeholder and former NRC employee noted that when the general license and cask certification process was in its developmental stages, there wasn't much consideration of amendments or the definition of "technology" in the Nuclear Waste Policy Act. There was a different paradigm at the time (expectation of a repository at Yucca Mountain), so it wasn't envisioned that we'd be in the situation we have today with storage in many casks, under many amendments.

An industry stakeholder commented that since the July 27, 2011, public meeting, they have further considered the approach to remove the rulemaking process, for example, for certain amendments that may not constitute a new technology. They considered a former petition for rulemaking submitted by NEI in the 2000 timeframe similar to this topic, and the NRC's denial of the petition was in part based on preserving the opportunity for public comment. If rulemaking was removed, one thought is that it might be replaced with a hearing process, to preserve public participation. However, industry does not believe there are significant benefits in such a change, and rather than pursuing the consideration of removing the rulemaking process, they feel resources and improvements could be focused in other areas.

A stakeholder commented that NRC should continue to consider whether an approach of "starting rulemaking earlier," where the rulemaking process is conducted in parallel with the staff's technical review, is feasible or warranted. Under such an approach, if there were any issues that arose during the staff's review that would impact the scope of the rulemaking, the proposed rule could be pulled back.

Single Certificate Approach

There was much discussion on considerations for a single certificate approach, where subsequent amendments to a CoC would encompass or supersede a previous amendment and be backward compatible, and how to implement (and the difficulties in implementing) such an approach.

One important consideration under this approach is how to address already loaded casks. One stakeholder noted that there would need to be a reasonable timeframe in which general licensees would have to implement any changes in subsequent amendments to a CoC.

An industry stakeholder provided some implementation issues with the approach and posed some questions for consideration. A general licensee needs about a 2-year lead time for ordering a cask and specifying the particular amendment they plan to load to, so the cask can be fabricated. If the licensee ordered a cask, and an amendment is issued in the meantime where a change in design would need to be incorporated, this would change what the vendor fabricates and certifies, which would create contract, cost, and schedule difficulties. Along those lines, if a user is getting ready to load under a particular amendment to a system, but then a new amendment is issued, would the user need to stop their loading campaign to analyze and make any changes to their programs and procedures to be consistent with the new amendment? Another example is that there may be long breaks between a general licensee's loading campaigns. If an amendment was issued and the licensee had a certain time frame to come into compliance with the new amendment, would the licensee need to repeatedly update their 10 CFR 72.212 evaluation and procedures to reflect the latest amendment (even though the licensee is not actively loading), rather than waiting until a time when it actually begins preparations for the next loading campaign?

The option of grandfathering was also discussed (if the implementation hurdles of such an approach cannot be overcome), where stakeholders commented that NRC could grandfather the existing CoCs/amendments and already-loaded casks, and then maybe apply a single certificate approach going forward.

An industry stakeholder discussed a “single active amendment” approach that industry is considering, where there would be a CoC with “subtypes.” The overarching CoC can change and be amended over time, but the user could continue to use that subtype that they loaded under. An amendment could entail changes to just one subtype, apply to all subtypes through amendment to the CoC, or could add a new subtype to the CoC/system. There would also be a single active/current FSAR under this approach.

There was discussion on why a single certificate approach is difficult for storage, but yet it works for the transportation framework in Part 71. Stakeholders commented that a transportation shipment is for a finite time, and once the shipment is made, there are no ongoing requirements or surveillances in Part 71 after that point in time. For storage, you are using the cask/CoC for long periods of time in which the CoC is continually being amended after the cask is already being used to store fuel.

A stakeholder noted that moving to some kind of single certificate approach may only require changes to NRC’s processes, as the current approach of “each amendment being standalone” is a process evolution, and not a regulatory requirement.

There was related discussion on the idea of having a single updated FSAR that applies to all amendments under a CoC. Stakeholders commented that multiple versions of cask FSARs, supporting different amendments to a system, creates implementation difficulties for the general licensee, in that they may have loaded casks to multiple amendments, and have separate FSARs supporting each amendment they are using. One difficulty is related to 72.48 changes and which version of “FSAR (as updated)” do they review, if there are a few separate versions supporting the different CoC amendments that may not even be the latest version the CoC holder keeps. Another implementation issue is that if there was a question or issue with a particular cask on the ISFSI pad, it is difficult for the reactor operator to know which version of the FSAR to refer to; this is very different from Part 50, where there is one updated FSAR for the reactor/plant to refer to and use. NRC staff noted that it is difficult for staff as well, particularly in terms of traceability and understanding what changes have been approved via an amendment, have been made by the CoC holder via 72.48 change authority, or have been made by the general licensee/user via 72.48 change authority.

A stakeholder noted that this issue is also important for CoC renewal, and NRC needs to consider how multiple CoC amendments and FSARs will be addressed in CoC renewals.

A proposal was put forward to have a future meeting or workshop on this specific topic, to discuss and address the many challenges in moving to such an approach. Several stakeholders and NRC staff supported the idea of further discussion on this topic.

Process for Changes or Corrections to Existing CoCs or Amendments

Industry stakeholders indicated strong support of NRC developing a process for minor changes and corrections to be made to CoCs and amendments, where the changes wouldn’t need to go through rulemaking.

CoC/TS Standardization

Industry stakeholders commented that we might reduce the complexity of current framework and CoC certification process, if there were fewer CoC amendments. They noted that CoCs/TS may contain many details that are not directly related to ensuring safety of the system. Through CoC/TS standardization, the CoCs/TS could be streamlined and the extraneous details removed, precluding the need for as many amendments. The stakeholder provided the example of some CoCs that may contain many pages of details and requirements related to fuel contents. If the CoC instead included some bounding criteria on fuel/contents characteristics, then a new fuel type could be stored in the system (as long as it met the bounding fuel characteristics in the CoC) without the need for a CoC amendment.

It was noted that NRC needs to consider cumulative effects of regulation (SRM-SECY-11-0032), as we move forward with consideration of this issue.

Spent Fuel Storage and Transportation Inspection Enhancement Initiative Update**NRC Presentation**

NRC staff presented an update on the SFST Inspection Enhancement Initiative (IEI). The IEI working group was chartered in April 2011. The Working Group completed its internal review in September 2011 and issued a report, documenting its review and 12 recommendations (listed at the end of this summary) for enhancing the inspection program. A Steering Committee evaluation was completed in December 2011, with management endorsement of the recommendations in January 2012 (with one recommendation, #6, being deferred). The Steering Committee evaluation, which lists and evaluates the Working Group recommendations, is located at ADAMS Accession No. ML113350577. The staff has solicited stakeholder input throughout the review process, including at the July 2011 public meeting on licensing and inspection enhancements, the November 2011 SFST Regulatory Conference, and the March 2012 Inspector Counterpart Meeting.

Since management endorsement of the recommendations in January 2012, staff has been implementing the recommendations, which include revisions to the Inspection Manual Chapter (IMC), inspection procedures, and internal staff procedures. The slide presentation on this topic (ADAMS Accession No. ML12223A194) provides details on each of the recommendations, actions staff is taking to implement them, and expected completion of implementation activities.

Stakeholder Comments and Discussion**Issues with Generic Implications**

There was discussion on how to identify whether issues identified during site or vendor inspections may have generic implications. NRC staff noted that SFST has a process to review any inspection issues or technical assistance requests from the Regions to determine if there is a generic issue. The NRC also holds a monthly call between SFST inspectors and Regional inspectors to discuss problems or issues that have come up in inspections and whether they've been encountered elsewhere, to identify whether it may be a generic issue. The staff will also consider including a note in the inspection procedures to assure inspectors are raising issues to the program office to assure the issues are properly vetted for generic implications.

How to Involve Vendors and Cask Users Groups in Inspection Follow-up

There was some discussion of whether or how to involve the vendors and cask users groups (CUGs) in implementation of Recommendation #4 to timely resolve generic issues identified

during inspections. NRC noted that it would consider the CUGs on our list of stakeholders, but we haven't yet determined how best to involve them. Staff also noted that there have been cases where the general licensee or vendor does not want to involve other parties in the inspection issue, so this needs to be a consideration. An industry stakeholder commented that CUGs can be of help in not only resolving generic issues, but also in helping to determine if an inspection issue is a generic issue.

Reactor Oversight Process (ROP)

An industry stakeholder commented that SFST and Regions should be coordinating with NRR on generally-licensed ISFSI inspections to determine what should be reviewed on the Part 50 side vs. what SFST/Regions review in Part 72 space. NRC staff noted that it has started using the IMC 0612 format for inspection reports for at-reactor ISFSIs to allow the inspection findings to be better integrated with the ROP. This is a starting point to get to eventual incorporation of the ISFSI inspections into the ROP. One hurdle to full integration of the ISFSI inspection in the ROP is development of an ISFSI significance determination process consistent with the ROP. To begin to develop such a process, staff is starting to rank inspection attributes by significance.

Sharing Operating Experience

Industry stakeholders discussed sharing and tracking operating experience. Industry has a formalized operating experience program for reactor licensees, and they are working to expand this program to capture operating experience with dry cask storage and cask vendors. Industry plans to discuss how to improve sharing of operating experience, at SFST's Regulatory Conference in September 2012.

Timeliness of Inspection Report Issuance

There was some discussion on issuing inspection reports in a timely manner. NRC staff noted that its goal is to get the inspection report out within 30 days after the exit meeting. The Agency's metrics for inspection reports are to issue them within 30 days after the exit meeting, or 45 days for team inspections. These metrics have consistently been met, and the staff noted that it did not feel inspection report timeliness was as much of an issue as was keeping inspection open for long periods of time to obtain additional information from the licensee or vendor. To improve in this area, if the licensee or vendor can provide the information to NRC within a week or so, we will keep the inspection open, but we are intending to not keep them open for much longer than that.

The staff is also looking at development of additional SFST business line performance measures to ensure that the inspection program is best supporting the Agency mission by focusing on risk-significant areas where inspection resources would be best used.

A stakeholder asked for an example of an RAI that involves a condition adverse to quality, as mentioned in Recommendation #5. The staff provided the example of where we may find gross errors in models or mathematical errors in calculations.

Regarding Recommendation #11 and integrating inspection staff into the licensing process and licensing reviews, staff expects that inspectors' review will include the proposed CoC conditions and TS to ensure that the CoC/TS are written in a manner that ensures they can be implemented and that compliance can be verified.

An industry stakeholder noted that we should assure that inspectors are conducting formal entrance and exit meetings. NRC staff noted that this is currently the expectation and are open to hearing feedback if this expectation is not being met.

Some stakeholders questioned whether the documents that are being revised through the inspection improvement efforts will be public. The IMC and inspection procedures are public, but most SFST office instructions are not public. Stakeholders commented that office instructions should be made public if they involve interactions with industry, licensees, or other outside parties and the staff noted that it would consider this.

Other Comments

The staff clarified that it plans to issue a Federal Register Notice providing an opportunity for formal stakeholder input on the licensing program improvement issues in the January 2013 timeframe; however, given the priority of the retrievability, cladding integrity, and safe handling issue, the staff is targeting an earlier separate Federal Register Notice on this topic.

Stakeholders and staff mentioned the need to be careful and deliberate in addressing these issues, to avoid unintended consequences. An NEI stakeholder commented that NRC and industry need to move briskly on these opportunities to improve. He noted that NRC and industry need to become more efficient, to be able to function in the new paradigm that includes addressing challenges of waste confidence and extended storage and transportation, and continue to meet high standards of safety.

TAC No.: LA0460

Enclosure: Meeting Attendees

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