Gallagher, Carol

From: Patricia Borchmann <patriciaborchmann@gmail.com>
Sent: Saturday, August 22, 2015 1:04 AM
To: Gallagher, Carol; Banovac, Kristina; Donna Gilmore; Patricia Borchmann
Subject: [External_Sender] NUREG 1927 Public Comment - Docket ID NRC 2015-0106 Std REview Plan - Renewal of IFSI Special Licenses and COCs for Storage Cask Designs (R4)
Attachments: NUREG 1927 (Rev.1) NRC Docket 2015-0106 Public Comment 08 21 15 R3.docx

Carol Gallagher - NRC
Kristina Banovac - NRC

I have attached an additional Word document, which contains my personal expanded public comment on NUREG 1927 (Rev. 1).
If possible, please utilitze this expanded document, and disregard earlier submittal(s).

Please confirm you receive this filing, at your earliest convenience on Monday, August 24, 2015.

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SUNSI Review Complete
Template = ADM – 013
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Add= K. L. Banovac (KLB)
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August 21, 2015

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NRC Rulemaking – Carol Gallagher
NRC Fuel Management, Safety – Kristina Banovac

RE: Public Comment on Standard Review Plan – NUREG 1927 (Rev. 1)
NRC Docket ID – 2015-0106 Renewal of ISFSI Special Licenses and COCs for Storage Cask Designs, for Period Not to Exceed 40 Years

Thank you for requesting public comment on NRC Docket ID 2015-0106 (NUREG 1927, Rev. 1).

The Description above indicates there is a 'time limit not to exceed 40 years', to apply to Renewals of ISFSI Special Licenses, and COCs for Storage Cask Designs. By itself, that limited description is deceptive, and less than full disclosure. **Stakeholders feel the Final revision for NUREG 1927 (Rev. 2) needs to include additional discussion to confirm how this project relates to NRC action taken August 26, 2014 ; to allow the potential indefinite continued storage of spent fuel onsite at nuclear power plants in United States, including San Onofre (SONGS 2 & 3).**

When NRC Commission took that action last year to allow 'indefinitely prolonged, continued onsite storage of spent nuclear fuel", a critical new variable was introduced, that still needs to be explicitly reflected in the next draft for Revised NUREG 1927 (Rev. 2). Until an expanded description is undertaken for the Final Revision for NUREG 1927, this document is grossly incomplete.

Allow me to remind NRC staff that this is not a new request from stakeholders. In earlier written comments by D. Gilmore from sanonofresafety.org (dated 12 22 14), Gilmore already informed NRC that the Commission's extended storage decision recognized there may not be a geological repository for forseeable future, and the Licensee for San Onofre (Southern California Edison) ignores the fact, and instead relied on unsupported expectation that Department of Energy (DOE) will being to pick up spent fuel from San Onofre in 2024. It is readily foreseeable, and already known to be an unrealistic, and probably infeasible timeframe expectation. Gilmore's earlier comments confirmed SCE's PSDAR, Dcommissioning Cost Estimate (DCE), and Irradiated Fuel Management Plan (IFMP) all required the same correction.

For purpose of full disclosure and consistency, stakeholders feel it is imperative that NRC define how both short and longer term impacts will be analyzed, mitigation measures, preventive measures, and corrective actions will be applied to minimize potential impacts on public health and safety during the maximum onsite storage of spent fuel, (including High Burnup Fuel) during both short term (up to 60 years); and long term (up to 160 + years and possibly for centuries.

Appendix B – Example Aging Management Plans (AMPs)

In the Final NUREG 1927 (Rev. 2), stakeholders feel that NRC also needs to expand the listed AMPs, to also examine and define a plan for a new cause of accelerated Concrete Degradation patterns, which were just recently identified this summer 2015 during an inspection at Seabrook nuclear power plant. I believe that over 8.4 million living within 50 miles of San Onofre will probably also exposed to the same type of Alkali-silica reaction (ACR) or concrete degradation, which is also commonly found in concrete structures like bridges and dams. Stakeholders in California expect the existing NUHOMS 27 dry casks inside the substantial concrete containment structure onsite at San Onofre, as well as the proposed large concrete containment system proposed by SCE Edison plans to use with the HOLTEC UMAX dry cask storage may also be vulnerable to this new type of accelerated concrete degradation.

Under the Appendix B NUREG 1927 (Rev.1) text currently proposes "to use achievable, actionable acceptance criteria". Stakeholders specifically request, and deserve expanded acceptance criteria to also reflect measurable (quantitative) criteria that is capable of verification, and is evidence-based.

Under current Appendix B, text "proposes use of consensus codes and standards where practicable for examination methods, equipment, calibration, acceptance criteria, and personnel qualifications". Stakeholders believe this by itself, is insufficient because it is overly vague, and fails to identify a specific safety-based standard which should clearly be a proven capability (and not just a SCC intention-based function), because it allows Licensee an excess of latitude – "where practicable". Exceptions to public health and safety should not be based on practicality for Licensee convenience, or profit margin. Stakeholders specifically request, and deserve the explicit statement of mandated safety standard performance capability (not just an unproven assertion, or unverifiable claim).

Under current Appendix B, NUREG text proposes to "rely on Licensee Quality Assurance and Corrective Action Programs for Further Evaluation, characterization, and other actions needed to preserve the SSC-intended functions". Based on performance at San Onfore SONGS 2 & 3 by Licensee SCE , and performance at Diablo Canyon NPP by Liensee PG&E, stakeholders in California have zero reason to have confidence in Licensee capabilities, or reliance on License Quality Assurance and Corrective Action Programs for Further Evaluation. This lack of confidence by stakeholders is based on series of catastrophic mistakes and actions taken by Licensee SCE at SONGS, and the recent June 7, 2015 NRC Event Report documented that "two spent fuel casks had been loaded improperly at Diablo Canyon in Avila Beach, CA. Upon further inspection, it was discovered that 19 of the 34 dry casks that have been loaded at the Independent Spent Fuel Storage Installation (ISFSI) have been loaded improperly." (Sierra Club, Grassrootsnetwork/team-news)

In the Final NUREG 1927 (Rev. 2), the Scoping Evaluation will also need a

corresponding expansion, to clarify how the expanded guidance applies to list of specified structures, systems and components (SSCs), and will also apply to examine Concrete Containment structures which contain the dry cask storage cask containers inside the containment barriers. As another now known source of potential accelerated Concrete Degradation, the SSCs will require examination and analysis for presence of potential alkali-silica reaction (ACR), and define preventive measures, and define corrective actions. At the Seabrook NPP, where ACR concrete degradation was recently identified this summer, NRC issued two green non-cited violations. The first deficiency finding indicated Seabrook Station "was not aggressively implementing" its structural monitoring program and therefore did not identify the degradation in the Containment Enclosure Building (CEB); and the second finding indicated Licensee NextEra did not provide an adequate 'prompt operability determination', which would detail how the plant would address the issue in the future. Since Seabrook currently has a pending license renewal application, Neil Sheehan (NRC spokeperson) said the decision on whether to grant the plant's license renewal is heavily dependent on NextEra's "long term' plan to address the ASR (alkali-silica reaction).

Because the Standard Review Plan proposed for NUREG 1927 (Rev. 1) will specifically apply to both low burnup, and high burnup spent fuel, the level of detail and technical degree of detail and specificity should correspond to maximum amount possible for each type of spent fuel. Stakeholders point out that there are a number of previously unexamined characteristics identified in a Memo dated December 17, 2013 by Bob Alvarez, that will need to be examined carefully, and integrated into the Final NUREG 1927 (Revision 2) pertaining to high burnup spent fuel.

A single example of high burnup spent fuel characteristics that needs additional technical analysis and thermal hydraulic study is the effect of high burnup fuel assemblies having been stored a longer time in spent fuel pools to achieve specific targeted cooling, and thermal range, would be to determine if the effect of having boron additives combined in water contained in spent fuel pools, might cause some unintended, or unanticipated, unexpected consequence on behavior of high burnup spent fuel. Stakeholders point out that on several pages of the 4-page Memo by Bob Alvarez (dated December 17, 2013), titled "High Burnup Spent Power Reactor Fuel" there are several obvious safety deficiencies caused by NRC's decision during 1990's to allow Licensees to operate reactors longer between refueling outages, and thereby decreasing number and frequency of required fuel outages. Because the behavior of High Burnup Fuel has yet to be fully characterized, tested, and fully understood, the NRC needs to fully integrate the analysis/findings contained in the Alvarez Memo on High Burnup Fuel into the NUREG 1927 revised, or Final Revision (2).

Under Wet Storage Issues (page 9), authors of a 2011 NRC-sponsored study indicated that accurate assessment of again of spent fuel pools is uncertain because "it is often hard to assess their in situ condition because of accessibility problems....Similarly a portion of the listed concrete structures are either buries or form part of other structures or buildings, or their external surfaces are invisible because they are covered with liners." 39

In last paragraph on page 9, Alvarez describes how "High-density racks in spent fuel pool in U.S. power plants post potential criticality safety concerns associated with deterioration of neutron absorbing panels that allow spent fuel rods to be more closely packed. Since 1983, several incidents occurred at reactors around the U.D. with these panels in which the neutron absorbing materials deteriorated, and in some causes bulged, causing spent fuel assemblies, containing dozens of rods each, to become stuck in submerged storage racks in the pools. The problem could lead to structural failures in the storage racks holding the spent fuel rods in place."

At top of page 10, Alvarez memo indicates: "According to the NRC in May 2010";

The conservatism/margins in spent fuel (SFP) criticality analyses have been decreasing....The new rack designs rely heavily on permanently installed neutron absorbers to maintain criticality requirements Unfortunately, virtually every permanently installed neutron absorber, for which a history can be established, has exhibited some degradation. Some have lost a significant portion of their neutron absorbing capability. In some cases, degradation is so extensive the permanently installed neutron absorber can no longer be credited in the criticality analysis (emphasis added). 40

For example, in 2007, SCE reported to NRC that Boraflex neutron absorbing panels have deteriorated to the point at SONGS 2 & 3 SFP where it was doubtful they could be credited to prevent criticality, SCE proposed installing borated stainless steel tube guide inserts, and to add more neutron absorbing boron to the pool water.41 According to SCE deterioration from erosion, over a period of 15 months, increased level of particles from disintegrated neutron absorbing panels in pool water by 134 %. These particles place an additional strain on pool water cleaning systems.

Equipment installed to make high-density pools safe exacerbates the danger of spent fuel cladding ignition, particularly with high burnup spent fuel. In high density pools at pressurized water reactors fuel assemblies are packed about nine to 10.5 inches apart, just slightly wider than the spacing inside a reactor. To compensate for increased risks of a large scale accident, such as a runaway nuclear chain reaction, pools have been retrofitted with enhance water chemistry controls and neutron absorbing panels between assemblies.

The extra equipment restricts water and air circulation, making pools more vulnerable to systemic failures. The ability remove decay heat from spent fuel pools to prevent boiling corresponds to the amount of water displaced in pool by spent fuel and equipment that allows for its tight packing. High density storage also impacts ability of water to flow through pool. If equipment collapses or fails, as might occur during a destructive earthquake or terrorist attack, air and water flow to exposed fuel assemblies would be obstructed, causing a fire, according to the NRC report Heat would turn the remaining water into steam, which would interact with zirconium, making problem worse by yielding inflammable and explosive hydrogen.

Thank you for thoughtful consideration.

Patricia Borchmann