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Gallagher, Carol

From:	Patricia Borchmann <patriciaborchmann@gmail.com>
Sent:	Friday, November 20, 2015 11:45 PM
To:	Gallagher, Carol; Bladey, Cindy; Wong, Emma
Cc:	Patricia Borchmann; Donna Gilmore
Subject:	[External_Sender] NRC 2015-0241 - Spent Fuel Reconfiguration in SF Storage Casks and Transportation Packages - Public Comment

Based on NRC docs contained in Docket NRC 2015-0241, and "Draft ISG-2, Revision 2 on Fuel Retrievability", it appears far more technical work, actual testing and operational experience is necessary to justify the scope, and scale of changes proposed by NRC staff, to reduce, modify or eliminate current regulations. Stakeholders do not wish to reduce safety margins contained in current regulations, which require spent fuel storage casks be 'readily retrievable', and having capability to be transported offsite for further processing, or disposal .

Stakeholders note the Draft ISG-2, Revision 2 was developed to apply to storage Certificate of Compliance, using ambiguous metrics:
"To the extent practicable in design of storage casks, consideration should be given to compatibility with removal of stored spent fuel from reactor site, transportation, and ultimate disposition by Department of Energy".

Stakeholders observe how all regulatory parameters propose a series of flexible options from which Licensees are allowed to select certain options, which would define further submittals, and processing requirements. During the evolution of Internal Staff Guidance documents, stakeholders observed how the regulatory agency NRC consistently applied little, or defined no independent engineering performance criteria, and instead typically only applied a deferential concurrence with specific findings, values, and patterns self-defined or projected by ongoing agency, and industry research, or forecasts of simulated conditions, based on computer modeling, but not based on actual testing outcomes, or evidence derived from actual operational experience, which fully examined all aspects of projected cask aging degradation causes.

Stakeholders observe how, as regulations become more difficult to define until a more substantial basis of operational experience is developed, and specific spent fuel behavior patterns become known (especially with high burn-up fuel), many technical uncertainties or technological gaps will still remain technically unresolved, and little more than sophisticated industry 'guesswork' is supposed to provide stakeholders, and investors with confidence that performance will match forecast projections. So far, industry projections or forecasts on many technical service life estimates for expensive replacements of major infrastructure components have recently been found surprising deficient, and major infrastructure components in reactor design service life are found incapable to withstand readily foreseeable events, due to findings such as 'premature embrittlement', stress corrosion cracking, alkali-silica reaction, concrete degradation, metal fatigue, stress, mechanical fatigue, or performance failures which reflect unexpected departures from forecast service life projections. Stakeholders often have credible solid reasons to have become skeptical of industry rhetoric over decades, or routine cavalier assurances of defense in depth, system robustness, and redundancy of emergency safety systems, performance capabilities.

Without storage cask designs with mechanical instrumentation capabilities to define actual internal fuel conditions during fuel storage duration, an unintended consequence of cask design simplicity is uncertainty of fuel condition, or internal depths of cask wall penetrations. Until more sophisticated internal cask condition assessment capabilities are developed, tested, refined, retested and proven, little more than crude guesswork capabilities remain only as an inferior substitute for actual proven testing, and evidence driven results. Therefore, stakeholders consider it extremely premature, and grossly inappropriate for the type of conclusive statements, and the undisputable level of conclusion findings which already appear in certain section currently contained in Docket NRC 2015-0241.

For example, in paragraph 1 of the Foreward (page v), second sentence: "Based on the current knowledge of material properties and mechanical performance of fuel cladding, the Nuclear Regulatory Commission (NRC) has reasonable assurance that spent nuclear fuel, including high burnup fuel (burnup >45 GWd/MTU), is safe for storage and transport under normal, offnormal, and hypothetical accident conditions as prescribed in 10 CFR Part 72, and Part 71 for all the storage systems and transportation packages approved to date". As a stakeholder who has read the technical body of work contained in the 68-page document published September 2015 "A Quantitative Impact Assessment of Hypothetical Spent Fuel Reconfiguration in spent Fuel Storage Casks and Transportation Packages", I take extreme exception to conclusive findings contained in Foreward, as only one example.

Another extreme example, can be found one page 42;
"For configurations where all of the assemblies are represented as debris piles, which remain inside their respective basket cells, large impacts on the predicted internal cask temperatures could result in the package not meeting the thermal requirements for such systems. For the vertical orientation, the maximum temperature of the basket stainless steel walls and neutron absorber material increased by over 79 degrees C, compared to the nominal intact configuration case as shown in Figure 24. The assembly debris is assumed to block the basket cell channels causing a reduction in the convective heat transfer within the canister. In addition, the release of the fission product gases results in a decrease in gas thermal conductivity, resulting in lower heat conduction and heat transfer through the gas space. Both effects -- lower convection and lower gas thermal conductivity - result in the large increase in internal temperatures. Increasing the packing fraction of the debris caused a greater increase in the maximum basket wall temperature. This is expected as the debris, generating the same amount of heat, has less ...."a

Rod assembly deformation results: (page 49):
For the vertical orientation, both increasing and decreasing the fuel lattice pitch caused a decrease in maximum cladding, basket wall, and neutron absorber temperature as sown in Table 21. The heat transport within the canister relies on complex parallel and intersection paths of conduction, convection and thermal radiation. Decreasing the lattice pitch resulted ina higher predicted recirculating mass flow rate within the canister as shown in Figure 30, thereby increasing convective heat transport. However, the flow loss coefficients for spacer grids and entrance/exit losses may be impacted. Increasing the lattice pitch increases the cladding to basket wall view factors, thereby increasing thermal radiation heat transport. Of the cases analyzed, the nominal intact configuration case resulted in highest temperatures.

In southern California, reactor communities in San Diego and Orange County have many stakeholders (8.4 million within 50 miles of San Onofre SONGS 2 & 3), who are still skeptical of the broad assurances, and agency rhetoric about system robustness, defense in depth, performance capabilities, and safety redundancy systems, and many stakeholder do not share the same high confidence levels that are shared by most agency regulators, and industry insiders, contractors, vendors, utility advocates. For instance, many of the most basic underlying premises applied to Decommissioning Reactors seems as it agency/industry calculations are typically a gross underestimation of a credible, foreseeable risk events, or examples where nuclear regulatory agency, and industry advocates grossly exaggerate, or overestimate performance capabilities. For instance, on page 2, Under II.Background section A: Regulatory Actions Related to Decommissioning Power Reactors: paragraph 3:
"During reactor decommissioning, the principal radiological risks are associated with storage of spent fuel onsite. Generally a few months after reactor has been permanently shut down, there are no possible design-basis events that could result in a radiological release exceeding limits established by EPA early-phase

Protective Action Guidance of 1 roentgen equivalent at the exclusion area boundary. The only accident that might lead to a significant radiological release at a decommissioning reactor is a zirconium fire. The zirconium fire scenario is postulated, but highly unlikely, beyond-design-basis accident scenario that involves a major loss of water inventory from spent fuel pool (SFP), resulting in a heatup scenario that might result in a zirconium fire are related to decay heat of irradiated fuel stored in SFP. Therefore, probability of zirconium fire scenario continues to decrease as a function of time that decommissioning reactor has been permanently shut down".
I think that entire paragraph is unsupported by evidence, and needs to be reexamined as a fundamental underlying assumption on Decommissioning.

Since most recent Community Engagement Panel (CEP) Meeting in late September provided updated permit sequencing phases projected by SCE Edison, stakeholders are finding out that spent fuel stored in Spent Fuel Pools will remain in cooling ponds, much longer than initially projected. Therefore, stakeholders assert that the regulatory agency's forecast for the most unlikely event of a potential breach of spent fuel pool, loss of coolant accident , or other potential accident scenario are NOT as remote, or as unlikely as forecast by NRC, or industry advocates. Therefore, stakeholders still assert that credible foreseeable risks have been grossly underestimated, and performance capabilities during a most unlikely accident scenario are grossly overestimated, by having trained onsite crews available, to bring in offsite water distribution sources, to perform replacement of cooling water in spent fuel pools before cooling water loss causes criticality, or potential explosion, or other hazard.

If possible, there are notes I have handwritten on another 2 pages, that I would like to still submit to complete my Public Comment on NRC Docket 2015-0241, however I am unable to complete them before the 9pm EST comment deadline (November 20, 2015). I don't want to risk losing my comments generated so far, so I will make the online submittal on time, (although it is incomplete).
Let me know if supplemental comments sent after this submittal can be combined with this preliminary Public Comment?