

Gallagher, Carol

From: Patricia Borchmann <patriciaborchmann@gmail.com>
Sent: Tuesday, May 05, 2015 5:19 PM
To: Gallagher, Carol; Solis, Jorge
Subject: Public Comment NRC 2014-0274 (attachment - Word doc Letter 5 pages)
Attachments: NRC 2014-0273 Impacts of Variation in Env Conditions on Thermal Performance of Dry Casks PSER COC 1031 HOLTEC FW.docx

Please accept my Public Comment on NRC 2014-0273;
"Impacts of Variation in Environmental Conditions on Thermal Performance of Dry Casks" -
HOLTEC International HiSTORM FW MPC Storage System
COC 1032, Rev. 1; Amendment 1.

if you have questions, my phone is 760 580 7046, If possible, please confirm receipt of my personal comments at your earliest convenience. thank you.

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Add= *Jorge Solis (JX50)*

May 5, 2015

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RE: NRC 2014-0273 "Impacts of Variation in Environmental Conditions on Thermal Performance of Dry Casks" - Public Opposition to Evaluation Findings

The purpose of this letter is to provide public comment on NRC 2014-0273. In this letter, I propose to identify specific limits in certain conditions, underlying assumptions, and the basic scoping premise applied in this Preliminary Safety Evaluation Report (PSER), dated March 13, 2015 that cause concern.

It appears that certain Findings by Applicant, were used to support several NRC staff determinations contained in the PSER (Docket 72-1032), which was prepared for the HI-Storm FW MPC Storage System proposed for Holtec International, COC 1032, Revision 1; Amendment 1.

For instance, I believe there is sufficient credible evidence contained in certain technical PSER Sections, to warrant further consideration by NRC staff, pertaining to PSER sections (on page 33), and on Table 4-6 (under Section 4.8.1.) pertaining to Wind Effects in Underground Casks.

In the section on page 33, there are indications of technical limitations that include:

"For casks with predicted small thermal margin, adverse ambient conditions could result in peak cladding temperatures (PCTs) exceeding recommended limits to normal conditions of storage. "

In the Conclusion (Section 5.0 Conclusion) section, the report indicates: "Wind magnitude effects of underground cask design included in this study; As wind increases, predicted peak cladding temperature (PCT) increases for a range of wind speeds 0-2.235 meters per second (m/s); (0-5 mph), as compared to quiescent conditions. At a wind speed of 5 mph (2.235 m/s), the PCT reached maximum predicted value."

These descriptions appear to reflect casks with predicted small thermal margins, where adverse ambient conditions could result in peak cladding temps (PCTs) exceeding limits to normal conditions of storage, which could lead to cladding failure, or insufficient structural support of critical safety structures, systems, and components (SSCs) important to safety to ensure compliance with relevant general criteria established in 10 CFR Part 72.

It is noted however, in the PSER Section 4 – "HI-STORM FW System Thermal Evaluation" that because a number of key thermal properties are expected to be stable they will follow practice used in ASME codes, and treat them as "invariant" and listed the invariant values of thermal conductivity, emissivity, nominal specific gravity, average thermal expansion coefficient, and specific heat in final safety analysis report (FSAR) Table 1.2.8b. The applicant indicates that variations in specific gravity and specific heat have a minor effect on thermal transient analysis because the cask basket has a small thermal inertia compared with other components in the cask. In response to staff's request for additional information (RAI), applicant provided thermal analysis results that demonstrated the changes in thermal properties have no impact on the transient results of a blocked vent accident. The applicant confirmed the low

impact of the values used in the analysis and thus justified referring to them as invariant properties for the range of proposed variation.”

In the PSER’s Section 4 HI-STORM FW SYSTEM THERMAL EVALUATION, there seem to be an excessive number of instances where applicant indicates (for instance on page 3) that the heat load limits are not affected by revised dimensions of the 14 x 14 fuel assembly, and the previous thermal analysis performed for the MP 37 bound the proposed new dimensions of the 14 x 14 assembly. Staff revised the previous thermal analysis of the MPC-37, which is performed for a 17 x 17 assembly. By comparing this flow area with proposed reduced 14 x 14 flow area, staff concludes the reduced area is still larger than the bounding scenario and the resulting flow resistance factors are conservative, and bounded by previous thermal analysis for HS FW Amendment No. 1, issued April 28, 2014. The heat removal capability along with the capability to maintain the fuel cladding below the ISG-11 guidance 752 degree and the NUREG-1536 safety limit of 1058 degree Fahrenheit is maintained. For THAT reason, staff finds this proposed change to be acceptable.

The Thermal Evaluation in Section 4 contains four primary Evaluation Findings:

The HI-STORM FW continues to be designed with a heat-removal capability having verifiability and reliability consistent with its importance to safety. The cask is designed to provide adequate heat removal capacity without active cooling systems.

The spent fuel cladding continues to be protected against degradation leading to gross ruptures under long-term storage by maintaining temperatures below 752 F (400 C). Protection of the cladding against degradation is expected to allow ready retrieval of spent fuel for further processing or disposal.

The spent fuel cladding continues to be protected against degradation leading to gross ruptures under off-normal and accident conditions by maintaining cladding temperatures below 1058 F (570 C). Protection of the cladding against degradation is expected to allow ready retrieval of spent fuel for further processing or disposal.

Staff finds the thermal design of the HI-STORM FW remains in compliance with 10 CFR Part 72, and the applicable design and acceptance criteria have been satisfied. The evaluation of thermal design provides reasonable assurance that the Hi-STORM FW will continue to provide safe storage of spent nuclear fuel. This finding is reached on the basis of a review that considered the regulation itself, appropriate regulatory guides, applicable codes and standards, and accepted engineering practices.

As a public stakeholder in a southern CA reactor community, where San Onofre (SONGS 2 & 3) Decommissioning Plan is being undertaken by SCE Edison (Licensee), the SONGS CEP Community Engagement Panel anticipates using these proposed HI STORM FW MPC dry storage system casks (HOLTEC), so millions of public stakeholders will be affected. Having reviewed as much technical material as possible, I believe there are many good reasons why stakeholders still have multiple outstanding credible safety concerns, that so far have not been fully resolved yet. Since some reports reflect there are indicators that there are technical limitations “for casks with predicted small thermal margin, adverse ambient conditions could result in peak cladding temperatures (PCTs) exceeding recommended limits to normal conditions of storage” it still seems uncertain that the HISTORM FW MRC fuel storage system will perform the many heat-removal capabilities without active cooling systems. Stakeholders are not convinced the applicant has provided sufficient verifiable proof that spent fuel

cladding continues to be protected against degradation leading to gross rupture under both long term storage, and under off-normal and accident conditions, by maintaining cladding temperatures below 1058 degrees F (or 570 degrees C).

Public stakeholders are also extremely concerned, because large inventories of spent fuel at San Onofre (SONGS 2 & 3) will be exposed to constant harsh marine atmosphere, for an 'indefinitely prolonged period' which is a NEW and much longer storage scenario.

Additionally, public stakeholders are concerned because we know that any dry cask storage system for spent fuel at San Onofre (SONGS 2 & 3) will be susceptible to corrosive effects of prolonged stress corrosion, metal fatigue, premature metal embrittlement or possible unanticipated effects which may be caused by Licensee (SCE's) plan to store large quantities of Hi Burn-up spent fuel, in HOLTEC dry cask containers.

It is a MAJOR CONCERN that neither the indefinitely prolonged duration of dry cask storage, the readily foreseeable plan that spent fuel at San Onofre includes large quantities of hi-burn up spent fuel, or the cask's constant exposure to marine atmosphere, coastal location in a chronic seismic zone, subject to inundation by either tsunami, or rising sea levels, or a site where severe reductions to Emergency Response Plans have already been approved by Nuclear Regulatory Commission, that NONE OF THESE highly relevant factors were ever considered in the Preliminary Safety Evaluation Report (dated March 15, 2015). I

Additionally the PSER as currently written (dated March 15, 2015), contains at least eight (8) risk categories were not considered, as proposed changes that affect staff's evaluation provided in the SER supporting COC No. 1032, Amendment 1, issued April 28, 2014, which were found by NRC staff as the sufficient basis that NO NEW evaluations were required for the following categories:

Confinement Evaluation

Shielding Evaluation

Materials Evaluation

Operating Procedures Evaluation

Acceptance Tests and Maintenance Program

Radiation Protection

Accident Analysis Evaluation

Quality Assurance Evaluation

While it may not seem like the applicant's request to amend HOLTEC's COC 1032 poses any unexamined threats, or might underestimate potential impacts to NRC's staff who have concluded their internal evaluation of the proposed dry cask changes, it is extremely important that NRC apply CAUTION, while evaluating all substantive public comments on NUREG 2014-0273.

Since NRC's former Chairperson Allison MacPherson already noted in late 2014, that current NRC regulations do not adequately address complexities of expected number of Decommissioning reactor(s). So until formal NRC Rulemakings are undertaken and finalized, during this interim period, as interim guidance, policy short cuts, exceptions, exemptions, or streamlining efforts are requested by applicants to expedite NRC permits, or NRC approvals, public stakeholders believe these requests deserve EXTRA attention, and analysis by staff, instead of LESS to fully protect the public interest, in a field where technologies are rapidly changing, and discretionary boundaries are more fluid than they used to be.

My last observation, is perhaps a most alarming concern: In my review, I noticed the primary gap in the Preliminary Safety Evaluation Report (PSER) dated March 13, 2015 as currently written, fails to fully coincide with other applicable NRC regulations. At top of page 2, the PSER indicates: The staff's assessment is to determine whether CoC No. 1032, Amendment 1, as revised continues to meet applicable requirements of 10 CFR Part 72 for independent storage of spent fuel, and 10 CFR Part 20 for radiation protection.

In a brief phone conversation this morning, with NRC contributor Jorge Solis, Ph.D., regarding the scope of the PSER, we briefly discussed my observation, or concern that the PSER's scope did not go far enough. In our conversation, I indicated my concern was the PSER analysis should have been expanded to include analysis, and more verifiable evidence to support findings specifically pertaining to identical expectations in Evaluation Findings 2 and 3 (both found on page 3), as follows:

"Protection of the cladding against degradation is expected to allow ready retrieval of spent fuel for further processing or disposal".

From examining the technical exhibits, additional information supplied by applicant, reports, technical evaluations submitted by applicant for CoC 2032, Rev. 1, Amendment 1, and already accepted by NRC staff in support of requested changes, as a layperson myself, there did not appear to be any sections which either discussed, evaluated, analyzed, displayed, illustrated, proved, or graphically demonstrated how the proposed changes to the HI STORM FW MPC Storage System will ensure "that protection of the cladding against degradation is expected to allow ready retrieval of spent fuel for further processing or disposal".

The physical design of the proposed dry cask storage containers, including cross sections, only displayed depictions of underground casks, reinforcing rebar, followed by pouring a surrounding 20' tall layer of solid concrete around the 37 casks, but that appeared to be the END of the PSER analysis. There was no information at all, to show how the HOLTEC underground casks proposed for San Onofre (SONGS 2 & 3) will have the necessary performance capability to provide 'protection of the cladding against degradation is expected to allow ready retrieval of spent fuel for further processing or disposal'. In either end result (either further processing or disposal), casks would definitely need to be readily retrievable, and transportable to an offsite location. Cask capabilities, for Removal and retrieval of casks, and transportability are all MISSING, from design, analysis, technical reports, graphics.

In the PSER I reviewed, there was nothing whatsoever to demonstrate how the proposed CoC 1032 changes to cask design either provides, or will possess that important, and vital capability.

I appreciate opportunity to submit my public comment by end of today (May 5, 2015), as agreed during my earlier phone conversation this morning with NRC contributor Jorge Solis, Ph.D. I regret I had difficulty completing my written comments for submittal by yesterday May 4, 2015, because I had relevant questions I wanted to ask of Jorge Solis. Thank you for consideration.

Patricia Borchmann
resident of Escondido, CA