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To: RulemakingComments Resource; Donna Gilmore; Sproul, Fred; Hendricks, Bonnie; Ray Lutz; Ace Hoffman
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Thank you for the opportunity to make comments on the Holtec UMAX spent nuclear fuel storage system being considered to be deployed at San Onofre Nuclear Generating Station (SONGS).

What are the procedures in place to respond to a tsunami when the UMAX dry storage system allows sea water and debris to enter the cooling air vents where this material will then reside in the space between the stainless steel canister and the concrete encasement?

How will the salt water and debris be removed and the concrete cavity where the stainless steel canister resides be cleaned of any sand, dirt and salt residue from a tsunami?

What method will be used to keep rodents, insects and birds from entering the vents on cool nights and dying inside the space between the stainless steel canister and concrete encasement? How will that space be kept clear to ensure sufficient air passage in light of debris from animals at night keeping warm pushing husks, shells, feathers and excrement into the canister cooling annulus?

Given the presence of salt sea spray so close to the ocean and a stainless steel canister's vulnerability to salt corrosion what is the rating of a partially corroded stainless steel UMAX canister to earthquakes?

How has an earthquake survivability rating been calculated and what is the level of confidence that the calculations are suitable for both S and P type waves for the entire surface of the canister, including corrosion around cylindrical welds near the base and top of the canister? What is the maximum depth of a crack in the stainless steel canister that will be deemed small enough to enable the canister to survive a major earthquake?

How can the 8 million people that live within a 50 mile radius be sure that canisters that have been deployed at SONGS in UMAX canisters for 20 plus years are sufficiently robust to survive a substantial earthquake? For the next 30 years, 40 years and how do you plan on substantiating the predictions made?

Since there is no way of knowing when the canisters will be relocated wouldn't it be prudent to peen or anneal the stainless steel regions that have experienced stress to reduce the Stress Corrosion Cracking due to chlorides?

Why isn't peening or annealing a specified requirement of the canister fabrication process to lengthen the life of the stainless steel canister, especially in areas where there typically is salt in the canister's cooling air?

Does peening really cost that much compared to having to re-canister to ensure a long deployed canister is sufficiently robust to be transported? The added longevity of the canister that has been peened or annealed should be compared to the cost of re-canistering.

Is the lack of peening and annealing before initial loading of the canisters with fuel a fore

shadowing of the fact that it is most likely that the spent nuclear fuel will be re-canistered before being transported?

What is the process for locating microscopic chlorine induced stress corrosion cracks (CISCC) on UMAX canisters before they are allowed to be transported on US highways and through communities? Given the microscopic nature of the CISCC cracks that can breach a canister and the enormity of the canisters, is seems impractical to rely upon inspection to reliability detect all CISCC before transport?

If there are no CISCC inspection technologies sufficiently reliable to detect 100% of the CISCC cracks, what will be a sufficient level of crack detection by the inspection equipment to enable the UMAX canister to be transported from a site where it has been stored for years in chloride salts?

If an inspection technology is developed that can detect 100% of the CISCC cracks what will be the maximum depth of the crack that will be allowed for transport of the canister?

Communities close and down wind of SONGS want the material moved ASAP but roadways are not sufficiently strong to hold the heavy weight of the canister in a properly radiation shielded transport vehicle. Plus the lack of a place to take the material makes a 30 to 50 year residence of the store spent nuclear fuel at SONGS likely.

The NRC's Darrell Dunn has stated that it could take as little as 16 years for a CISCC induced crack to penetrate a 5/8" thick stainless steel canister.

http://pbadupws.nrc.gov/docs/ML1425/ML14258A081.pdf (First paragraph page 4)

There have been cracks at other power plants, Koeberg comes to mind, close to the ocean where stainless steel has been exposed to salt air and CISCC has penetrated nearly 5/8ths of an inch stainless steel in 17 years of operation.

http://pbadupws.nrc.gov/docs/ML1425/ML14258A082.pdf

Recent EPRI canister inspections at Diablo Canyon Nuclear Power Plant have measured all the conditions required for a CISCC crack to initiate on canisters that have been loaded for only a couple of years.

https://sanonofresafety.files.wordpress.com/2011/11/diablocanyonscc-2014-10-23.pdf

It would seem that an 18 to 20 year timeline could be reasonable for a breached canister to occur.

What is the procedure for repairing a breached canister? What experience has there been with success of these repairs and its longevity? How can an untested storage technology that has no repair procedures be deployed in the middle of a dense population center? What are the procedures to handle such an event?

How can there be no requirement for real time radiation monitoring and reporting of the ISFSI's stainless steel canisters holding damaged reactor assemblies known to release radioactive krypton gas into the canister during storage? Does the NRC realize that SONGS

has an inordinate number of damaged fuel rod assemblies which increases the likelihood that a canister breach will involve radioactive krypton gas release?

How can the NRC endorse and Holtec sell such a storage system knowing that a CISCC induced breach could occur in a canister and release millions of curie of radiation into the surrounding environment with no means of detecting the release? Please view Holtec's CEO, Kris Singh, at a Southern California Edison sponsored Community Engagement Panel discussion describing the consequences associated with a microscopic breach of a stainless steel canister in the link below:

https://www.youtube.com/watch?v=euaFZt0YPi4

What about the thousands of cars driving on Interstate 5 passing through the radiation plume? How can this type of installation be allowed to be monitored only once every 3 months during a walk through inspection using a hand held radiation monitor on the end of a stick?

Has the NRC or Holtec performed studies to determine how many people will develop birth defects, cancer, lymphoma, Hodgkins and all the other types of ailments that a breached canister radiation exposure can induce and has it been determined by the NRC that the occurrences of these ailments will be less costly than performing real time radiation monitoring and reporting?

How expensive is it to provide real time monitoring of radiation on each canister? It would seem to me that the nuclear industry is based upon technology and should embrace the notion of monitoring its installations to prove their worthiness of our trust.

The cost of the lawsuits that will arise from the gross negligence of the NRC, SCE and Holtec by choosing not to monitor this spent nuclear fuel storage site for radiation release given the likely storage timeline and the radiation contents of the canisters will be more costly than the equipment cost.

My hunch is that the cost is not in capital equipment cost to purchase radiation detecting equipment but in public relations cost. Poorly monitored ISFSIs where a quarterly (once every three months a radiation monitor on a stick is paraded through the ISFIS) monitoring effort is unlikely to detect a rapid release of gaseous kryton radiation that is quickly dispersed once the pressure is released from the newly breached canister.

But a well monitored ISFIS will alert the operators who will be required to notify the public of a breach and raise the public's awareness to the absolutely unacceptable notion of storing spent nuclear fuel for an unknown duration in transportation canisters susceptible to salt corrosion on the ocean's edge.

Its not the cost of the radiation monitoring equipment. Its the cost of losing the public's trust by storing toxic material in insufficient containers that predictably breach in the environment they are deployed. But if there is poor radiation monitoring the breaches will go undetected and the nuclear industry's reputation will be falsely preserved.

Is it not possible to filter the salt out of the air that is used to cool the canisters?
Is it not possible to use thicker material that will take more years to breach?
Is it not possible to use thick ductile steel canisters in a concrete structure to provide both

longevity and protection from hostile aircraft?

Its only a matter of time before the thin transportation canisters being used as long term storage canisters will fail and the nuclear industry will be the real losers. Since there is no permanent repository available there needs to be a shift in the way this material is stored on-site for decades.

Please consider alternative storage technologies that are proven and being used in Germany and Japan using thick ductile steel casks for harsh environments like SONGS.

What is being proposed for SONGS is an insufficient spent nuclear waste storage technology for the site.

The NRC's own material scientists have provided the timeline for a breach, and the politics and inability to determine a site for a permanent repository provide the relocation timeline.

As much as the NRCs bad decisions related to dry storage will punish Southern California, it will also reflect upon your industry and the inescapable truth that there is no good solution for the nuclear waste will be highlighted by breached canisters at SONGS. A more responsible solution will spare us all a lot of grief.

Thank you for the opportunity to comment,

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