Q: My question is, didn't Palisades first violate NRC's PTS safety standards 10 short years into its operations, by 1981? This was documented in the following document: July 8, 1993: “Pressurized Thermal Shock Potential at Palisades: History of Embrittlement of Reactor Pressure Vessels in Pressurized Water Reactors,” prepared by Michael J. Keegan, Coalition for a Nuclear Free Great Lakes, Monroe, Michigan (re-published August 3, 2005). In addition, the Associated Press's Jeff Donn pointed to NRC's weakening of PTS safety regulations as his top example of NRC's weakening safety regulations in order to allow dangerously degraded old reactors to continue operating despite the worsening breakdown phase risks, in his four-part series "Aging Nukes," dated June 2011.

Q: Has the NRC Region 3 Staff, NRC's Nuclear Regulatory Research staff, and other relevant staff read Mr. H. Ino's articles appearing in the Citizens Nuclear Information Center-Tokyo newsletter in May/June 2012, and July/August 2012, about reactor pressure vessel embrittlement/PTS risks at Japanese pressurized water reactors? I handed hard copies to every NRC staff member who would take one from me when we met with NRC Chairman Jaczko at the Beach Haven Event Center in South Haven on May 25, 2012.

Q: How many metal coupons or metal capsules are left within the Palisades' reactor pressure vessel? News reports have recently reported that Entergy has said it will pull a capsule or coupon to examine this autumn. How long has it been since the last coupon/capsule examination? Has NRC's assurance of PTS safety at Palisades all been based on computer models since the last coupon/capsule examination, by merely extrapolating expected embrittlement rates, as opposed to actual physical measurements? But Mr. H. Ino's articles in the CNIC-Tokyo newsletter contained the very significant warning that embrittlement predictions were significantly non-conservative. For example, the Genkai-1 reactor pressure vessel had much worse embrittlement than had been previously predicted. How can NRC and Entergy be so sure that Palisades' embrittlement has not reached a dangerous state, since no physical measurements have been taken in so long?

Q: WHY does Palisades have the worst embrittled reactor pressure vessel in the U.S., as NRC's Nuclear Regulatory Research staffer Jennifer Uhle admitted was the case at a public meeting at the Beach Haven Event Center in South Haven on Feb. 29, 2012? Is it due to the impurities in the RPV steel
Q: Why compare aircraft landing gear to an atomic reactor like Palisades? Besides the very different destructive forces the two objects have to endure (for example, aircraft landing gear are not subjected to 600 degree Fahrenheit temperatures then plunging by hundreds of degrees in a short period of time, as well as 2,000 pounds of pressure per square inch, not to mention the neutron radiation bombardment, like Palisades is and has been for 42 years now?). If landing gear fails on an airplane, some hundreds of people could perish -- if Palisades suffers a catastrophic radioactivity release, many thousands, or even tens of thousands, could die over time, as reported by the NRC-commissioned, Sandia National Lab-conducted 1982 report CRAC-II (Calculation of Reactor Accident Consequences, also know as the Sandia Siting Study or NUREG/CR-2239).

Q: If the reactor pressure vessel at Palisades does succumb to a pressurized thermal shock rupture, will the primary reactor cooling water instantly turn to steam, because the pressure will be relieved? Will it then escape the RPV through the fracture? How could the reactor core be prevented from melting down at that point? Could the meltdown melt through the bottom of the RPV, like happened at Fukushima Daïchi Units 1, 2, and 3? Could the Palisades meltdown even penetrate through the radiological containment structure? Could this cause the casualties and property damages reported in NRC's 1982 CRAC-II report? What about the impacts on Lake Michigan, drinking water supply for 40 million people downstream?

Q: On Sept. 25, 2011, during the loss of power to half the control room at Palisades, the emergency core cooling system was inadvertently activated. However, it did not completely activate. If it had completely operated as instructed, albeit inadvertently, could the pressurized thermal shock on the 100% power level and heat level Palisades RPV have fractured under the sudden temperature plunge, coupled with the high pressure level?

Q: What is NRC's response to the March 29, 1982 (the third anniversary of the Three Mile Island meltdown) warning by its own safety engineer, Demetrios Basdekas, in an op-ed to the New York Times, that the next meltdown in the U.S. could very well be due to an embrittled RPV suffering catastrophic PTS?

Q: Why did the NRC Staff and Office of General Counsel actively oppose
environmental interveners' embrittled RPV/PTS risk contention during the Palisades 20-year license extension proceeding in 2005-2007? As part and parcel of the license extension approval, didn't NRC's ASLB, as well as NRC Staff, require a plan by Entergy by 2011, to deal with Palisades' impending 2014 violation of PTS safety standards? It appears the "plan" was simply to weaken the PTS regulations, in order to allow Palisades to operate past 2014, till at least 2017. Will NRC weaken its PTS regulations yet again, to allow Palisades to operate past 2017, even out to 2031? Will NRC also approve 80 years of operations at Palisades -- out to 2051 -- as the Nuclear Energy Institute has expressed interest recently in applying for permission to do?

Q: Given the badly embrittled status of the Palisades RPV, might this not lead Palisades control room operators and senior management hesitating before activating the emergency core cooling system, for fear of fracturing the RPV? Might this not significantly increase the risks of an overheating accident, and even a meltdown?

Q: On May 25, 2012, 25-30 of us met with NRC Chairman Jaczko and many other NRC staff, including from Region 3 (including Regional Administrator Chuck Casto). Embrittlement of the RPV and PTS risks were a primary subject matter discussed during the meeting. Dr. Barbara J. Pellegrini was one of the concerned local residents who attended. On May 30, she wrote NRC Chairman Jaczko her ideas for how Palisades' RPV embrittlement could be measured, and PTS risks defended against, including consultation with many experts in the field of materials science. NRC never responded to her letter. Why not?

Q: Just now annealing was held forth as a potential solution for the embrittled Palisades RPV. But Consumers Energy floated this empty promise decades ago. Entergy has floated this empty promise years ago now. Now NRC is floating this empty promise. What good is an empty promise, when obviously NRC will never require it to be done, and Entergy does not intend to do it?

Q: Has annealing of an embrittled atomic reactor pressure vessel EVER been done, anywhere in the world? If yes, what were the results? Did it work? Is success guaranteed at Palisades, even if annealing is done? Was that RPV as badly embrittled as Palisades' RPV is? How much would annealing cost at Palisades? Isn't it so very expensive as to be cost-prohibitive for Entergy,
which is currently facing tough economic times, as indicated by UBS Financial analyses, which mentions that several of Entergy's reactors face shutdown THIS YEAR due to such economic reasons (that is, the inability to make a profit, due to exorbitant major safety repair bills)?

Q: Consumers Energy told the Michigan Public Service Commission in spring 2006 that the reason it was selling Palisades to Entergy was that it could not afford the major safety repairs needing to be done, such as on the embrittled reactor pressure vessel. Yet, even after owning Palisades for six years, Entergy has done absolutely nothing to deal with the Palisades RPV embrittlement risks. The public and even decision makers like Michigan Public Service Commission have been victims of a bait and switch. How can NRC let such promises -- that the embrittled reactor pressure vessel would be dealt with -- be broken?

Q: Did the Palisades power uprate which NRC so readily approved worsen the neutron flux on the reactor pressure walls? Did NRC even consider the embrittlement and pressurized thermal shock risks of approving that power uprate?

Q: But how long has it been since the last capsule was removed? Since that last capsule was analyzed, what if the embrittlement has taken place at a much more accelerated rate than NRC's modeling would predict?

Q: Since risk is probability times consequences, isn't it accurate to say that embrittlement/pressurized thermal shock risks are significantly worse than they were in 1971, pre-operations?

Q: What about the synergistic effects of Palisades' many problems? Not only is the RPV the worst embrittled in the US, but Palisades needs the 2nd steam generator replacement in its history, its badly corroded reactor lid is now 6 years overdue for replacement, and a diversity of leaks, breakdowns, and failures have occurred in the past few years. Might not all these problems add up to a catastrophic failure at Palisades? Why doesn't NRC address the totality of all these risks as a whole, as that is the reality of the situation, instead of just one system, structure, or component at a time, in isolation? To the equipment problems, there are the safety culture violations at Palisades.

Q: If capsules were removed in the mid-1990s and 2000s, as NRC just said, that's a decade or two ago. Has NRC simply extrapolated to predict the
severity of embrittlement? What if NRC's understanding is flawed? What if the extrapolation is non-conservative? How can NRC speak with any confidence, if the last physical data collected -- and very few data points at that -- are over a decade old? This is not science. This is guesswork. The safety risks are too high for this lack of science.

Q: Reactor accident risk has gone DOWN because of operator experience and training? I thought Palisades was busted for having a safety culture in complete collapse, just one year ago. Doesn't that increase reactor disaster risks? Has NRC forgotten all about that safety culture problem at Palisades?

Q: Isn't yet another INCREASE in reactor disaster risk at Palisades the sheer 42 year old age? Break down phase risks? The NRC staffer just downplayed reactor risks at Palisades, which is misleading. Another undermining of the NRC

Q: Another undermining of the NRC's flip assurance that reactor operating experience and training is a risk reduction these days at Palisades, is the fact that Entergy, as a cost cutting measure, has cut experienced staff over the past 6 years. In fact, some of the best, most experienced staff at Palisades has been let go. Doesn't this fact increase the embrittlement/PTS risks at Palisades, given the increased risk of reactor problems?

Q: But it's called PRESSURIZED thermal shock! How can you say PRESSURE doesn't add to PTS risks??