Public Comments re: Docket ID NRC-2014-0207

Submitted by Kevin Kamps, Radioactive Waste Specialist, Beyond Nuclear, and Board of Directors Member, Representing the Kalamazoo Chapter, for Don't Waste Michigan

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

   Entergy Nuclear's Response: No. We challenge this response.

2. Does the proposed change create the possibility of a new or different type of accident from any accident previously evaluated?

   Entergy Nuclear's Response: No. We challenge this response.

3. Does the proposed change involve a significant reduction in a margin of safety?

   Entergy Nuclear's Response: No. We challenge this response.

The NRC staff states that it "has reviewed the licensee's analysis and, based on this review, it appears that the three standards of 10 CFR 50.92(c) are satisfied," and "Therefore, the NRC staff proposes to determine that the amendment request involves no significant hazards consideration." We challenge NRC staff's determination.

BASIS FOR OUR CHALLENGES

On July 8, 1993, Michael J. Keegan of the Coalition for a Nuclear Free Great Lakes published ***Pressurized Thermal Shock Potential at Palisades: History of Embrittlement of Reactor Pressure Vessels in Pressurized Water Reactors.*** He rekeyed this document on August 3, 2005. The report documents that Palisades first violated NRC's reactor pressure vessel embrittlement/pressurized thermal shock safety standards in 1981, a mere 10 years into operations. The report also documents repeated rollbacks of the NRC PTS regulations up to that point in time, enabling Palisades to continue operating, despite its degraded condition. This weakening of PTS safety standards continues to the present day, as with this proposed license amendment.

We hereby incorporate as if rewritten the entirety of Keegan's 1993 report. We will also submit the report for the official record on this proceeding. This document is also posted online at http://www.nirs.org/reactorwatch/licensing/071805pressurizedthermalshockpotentialpalisades.pdf.

A U.S. Nuclear Regulatory Commission document (Date Submitted: October 26,

2004; Revised: December 14, 2004), "Generalization of Plant-Specific Pressurized Thermal Shock (PTS) Risk Results to Additional Plants," Table 1. Plants with highest RTNDT, showed that Palisades had the fifth "most embrittled materials" in the U.S. This document is posted online at http://www.nirs.org/reactorwatch/licensing/121404nrc30mostembrittledrpvs.pdf. It will also be submitted for the record on this proceeding.

However, at an NRC public meeting held at the Beach Haven Event Center in South Haven, MI in late Feb., 2012, in response to a direct question I made (I participated by telephone from Washington, D.C.), NRC's Office of Research's Jennifer Uhle confirmed that Palisades has the most embrittled RPV in the U.S. So, in the short space of eight years, Palisades had moved from fifth worst, to single worst embrittled RPV in the U.S.

This dubious distinction was confirmed by an NRC resident inspector at Palisades, during a meeting between environmental group representatives and concerned local residents with NRC Chairman Macfarlane on June 5, 2014. The meeting was held in Benton Harbor, MI. To a direct question raised by Michael Keegan of Coalition for a Nuclear Free Great Lakes (who also serves as a board member of Don't Waste MI), the NRC resident inspector at Palisades, who took part in the meeting, also admitted that Palisades has the worst embrittled RPV in the U.S.

On August 8, 2005, Don't Waste MI, and a number of additional environmental group intervenors, as well as concerned local citizens, intervened against the Palisades' 20-year license extension application. This petition for hearings is posted online at http://www.nirs.org/reactorwatch/licensing/petition.pdf, and has been submitted for the record on this proceeding.

The very topmost of PETITIONERS' TECHNICAL/HEALTH/SAFETY ANALYSIS CONTENTIONS was:

1. The license renewal application is untimely and incomplete for failure to address the continuing crisis of embrittlement. The Petitioners allege that the Palisades license renewal application is fundamentally deficient because it does not adequately address technical and safety issues arising out of the embrittlement of the reactor pressure vessel and unresolved Pressure Thermal Shock ("PTS") concerns that might reasonably result in the failure of the reactor pressure vessel ("RPV"). The Palisades nuclear power station is identified as prone to early embrittlement of the reactor pressure vessel, which is a vital safety component. As noted in the opinion of Petitioners' expert on embrittlement, Mr. Demetrios Basdekas, retired from the Nuclear Regulatory Commission, the longer Palisades operates, the more embrittled its RPV becomes, with decreasing safety margins in the event of the initiation of emergency operation procedures. Therefore, a hearing on the public health and safety effects of a prospective additional twenty years of operation, given the present and prospective embrittlement trend of the RPV is imperative to protecting the interests of those members of the petitioning organization who are affected by this proceeding. (Page 4)

The intervenors also submitted this related contention:

8. Increased embrittlement of re-used fuel rods as buffers to reduce embrittlement of RPV walls. To mitigate the prospect of increased embrittlement of the reactor pressure vessel (RPV), the Palisades operator uses previously-irradiated fuel to create a buffer next to the RPV wall. The second-use of irradiated fuel assemblies in the reactor core tends to weaken and damage the cladding on the fuel rods, making future waste handling, storage, and ultimate disposal - whether on-site at Palisades, in transport, and at future storage or dump sites - problematic. It poses an elevated risk for the safety of Palisades workers and the general public. Moreover, the U.S. Department of Energy ("DOE") depends on the integrity of the fuel cladding as a means of preventing or minimizing the chances of unanticipated fissioning in storage casks or other units - in effect, as a means of delaying radiation releases into the groundwater at the Private Fuel Storage (Utah) and Yucca Mountain (Nevada) sites. (Page 7)

This submitted contention is also relevant, for it represents one of many scenarios that could lead to the need to activate the ECCS at Palisades, which could initiate PTS, RPV rupture, LOCA, containment failure, and large-scale release of hazardous radioactivity to the environment:

11. Threats of terrorist attack and sabotage against the Palisades nuclear power plant. Located on the shoreline of Lake Michigan, the source of drinking water, fish, recreation, and other economic value to tens of millions of people downstream, Palisades represents a target for potentially catastrophic terrorist attack or sabotage intended to release large amounts of radioactivity into the Great Lakes basin. Palisades represents a radioactive bull's eye on the shore of 20% of the planet's surface fresh water, the Great Lakes. The operating reactor (containing many billions of curies of radioactivity) and high-level waste storage pool (containing tens to hundreds of millions of curies) are vulnerable to such attack, as are the outdoor dry storage casks, so highly visible stored in plain sight. (Page 9)

Regarding Mr. Demetrios Basdekas, retired from the Nuclear Regulatory Commission staff, he had authored the following op-ed in the *New York Times*, published on the third anniversary of the Three Mile Island meltdown (March 28, 1982). Entitled "The Risk of a Meltdown," the op-ed is posted online at http://www.beyondnuclear.org/storage/kk-links/Basdekas%20op%20ed%20NYT%203%2029%201982.pdf, and has been submitted for the record of this proceeding.

As the faxed version of the op-ed is not entirely legible, I have rekeyed it for legibility sake. Here is the full text, within brackets below:

[The Risk of a Meltdown

By Demetrios L. Basdekas

New York Times Op-Ed, March 29, 1982 [the 3rd anniversary of the Three Mile Island meltdown]

Washington—There is a high, increasing likelihood that someday soon, during a seemingly minor malfunction at any of a dozen or more nuclear power plants around the United States, the steel vessel that houses the radioactive core is going to crack like a piece of glass. The result will be a core meltdown, the most serious kind of accident, which will injure many people, destroy the plant, and probably destroy the nuclear industry with it.

On the third anniversary of the Three Mile Island Accident, the Government and industry are unable or unwilling to deal honestly and urgently with far-reaching nuclear-safety problems.

Another serious accident is very likely because the wrong metal was used in the reactor vessels, and with each day of operation, neutron radiation is making the metal more brittle, and more prone to crack in case of sudden temperature change under pressure.

One manufacturer of nuclear reactors has reported to the Nuclear Regulatory Commission that in three to five more years, the vessels in some plants will be too brittle to operate safely. But this estimate is wishful thinking, based on unrealistic assumptions about plant operators' actions and accident sequences. Some plants are already too dangerous to operate without corrective measures.

The commission could do a great deal to prevent such an accident, and stretch out the lives of many of these brittle vessels, if it ordered the type of corrective steps already taken at some European reactors. But the commission, regulating an industry that has serious financial and technical problems, instead of taking initiatives tends to sweep difficult technical problems under the rug, reacting to crises only after they occur.

The commission must realize that this crisis is upon us. A temperature change severe enough to crack a brittle reactor vessel already has occurred, in California, but not at one of the older, more vulnerable plants. The commercial nuclear industry's admirable safety record – no deaths caused by radiation – still is intact, but this cannot last much longer, because the reactor vessels and other critical components are aging.

For many years, it has been known that vessels are becoming brittle. What makes the problem urgent is that the metal is aging more rapidly than expected, and the circumstances that would cause such an accident now seem more likely.

(continued)

At the Rancho Seco plant, near Sacramento, Calif., in March 1978 a worker dropped a small light bulb into an instrument panel, causing an electrical short circuit. The short wreaked havoc on the plant's control systems – a variety of instruments that run crucial pumps and valves – and the result was that too much water was pumped through the reactor, chilling it suddenly. It is very doubtful that some of the older plants operating today would be able to withstand the same shock. Fortunately, Ranch Seco had been in operation less than two years; had it been in operation for 10, its pressure vessel most likely would have ruptured.

The kinds of control systems that went haywire at Rancho Seco are very likely to fail at crucial times in other nuclear power plants. When a pipe bursts, or a seal fails, or a valve sticks, automatic control and safety systems almost instantly take action to compensate, but they do not always take the right action.

Control systems are not reviewed by the Nuclear Regulatory Commission. They are not immune to fire or power failure; they often have no backups, so are prone to simple failure. They are not even earthquake-proof.

The N.R.C. staff has taken the position that if a plant gets into trouble because of control-system malfunctions, it has safety systems to take care of any problems. But this is not so, as events of the last few years show. At Rancho Seco, at Three Mile Island, and at other plants, control systems not thought vital to the safe operation of a plant ended up causing serious problems.

The Nuclear Regulatory Commission is charged with ensuring that nuclear plants are operated "with adequate protection" of the public health and safety. But bureaucratic foot-dragging and preoccupation with public relations and financial problems of the industry are contributing to a shortsighted view – that technical problems can wait or do not exist. Some members of the staff acknowledge the safety problems associated with control systems, but the agency has yet to demand from utilities operating nuclear power plants the technical data on control systems necessary to assess the systems' safety fully.

It may be that we need nuclear power to maintain our standard of living. But there is a vast difference between having to accept something, and making it acceptable. We can make nuclear power acceptable.

The Nuclear Regulatory Commission chairman, Nuncio Palladino, has spoken of cleaning up our nuclear act. As a private citizen, I hope that we do so, beginning with vigilance at the N.R.C. One more accident the size of Three Mile Island's, and the public's reaction almost certainly will foreclose the nuclear option.

Demetrios L. Basdekas is a reactor safety engineer with the Nuclear Regulatory Commission.]

On September 16, 2005, the environmental intervenors made the following response in defense of their PTS/RPV embrittlement contention (Pages 2 to 23 of PETITIONERS' COMBINED REPLY TO NRC STAFF AND NUCLEAR MANAGEMENT COMPANY ANSWERS, posted online at http://www.nirs.org/reactorwatch/licensing/contnresp.pdf and submitted for the record of this proceeding):

Response as to Contention No. 1 (The license renewal application is untimely and incomplete for failure to address the continuing crisis of embrittlement)

NMC and NRC staff have argued that Contention 1 regarding the Application's proposed management of the embrittlement of the Palisades reactor pressure vessel is inadmissible because the Contention (i) fails to challenge the Application and demonstrate the existence of a genuine dispute on a material issue of fact or law; (ii) fails to provide a factual basis to support any dispute with the application, and; (iii) improperly challenges Commission regulation. These assertions are incorrect.

1) **The embrittlement contention is within the scope of the proceeding**

The extended operation of the Palisades nuclear steam supply system falls squarely under 10 CFR § 54.21 and § 54.29(a) which focuses on the management of aging of certain systems, structures, and components and the review of time-limited aging evaluations.

A genuine dispute exists within the Application that is germane to the health and safety of the petitioners who live, work and recreate out to 50 miles from the Palisades nuclear power station in Covert, Michigan.

The Palisades Reactor Pressure Vessel is the subject component. There is no safety redundancy to this single largest component in the Palisades nuclear steam supply system. Palisades is arguably one of the most embrittled reactor pressure vessels, if not the most embrittled vessel, in the United States. The nuclear steam supply system for Palisades was the first of the Combustion Engineering line licensed for construction. Documentation as early as1970 identifies

Surveillance specimens in the vessel will be used to monitor the radiation damage during the life of the plant. If these specimens reveal changes that affect the safety of the plant, the reactor vessel will be annealed to reduce radiation damage effects. The results of annealing will be confirmed by tests on additional surveillance specimens provide for this purpose. Prior to the accumulation of a peak fluence of 10 E 19 nvt (>1 Mev) on the rector vessel wall, the Regulatory Staff should reevaluate the continued suitability of the currently proposed startup, cool down, and operating conditions. [Footnote 1: Report on Palisades Plant, Letter from Joseph Hendrie (ACRS) to Glen Seaborg, Chair AEC, January 27, 1970.]

Exhibit 1-A. All exhibits are found in "Petitioners' Appendix of Evidence in Support of Contentions" (Pet. App.), a copy of which is provided with this response in hard copy to the ASLB and the parties.

The Petitioners have been able to establish that the licensee could not provide surveillance materials for critical weld material in the Palisades vessel beltline welds in 1994. [Footnote 2: Palisades Thermal Shock, NRC Staff Presentation to the ACRS, Viewgraphs, December 09, 1994, p.3.] See Exhibit 1-B.

A commitment was made for the Palisades plant as early as 1970 to make actual physical efforts by annealing the vessel to restore ductility should any "radiation damage" affecting plant safety be discovered. In fact, calculations later recognized by NRC staff concluded that the Palisades vessel could have surpassed its Pressure Thermal Shock ("PTS") limits as early as 1995. Repeated Palisades re-analyses have produced a widening range of resulting estimates for exceeding vessel embrittlement limits with a very broad range of uncertainty (as much as ± 25%) with as many PTS values for the severely-embrittled reactor vessel. Palisades has neared the maximum-embrittlement goalposts time and again over the years, [Footnote 3: "For example that is sort of a summary of the regulatory framework that applies to annealing. With regard to Palisades, we completed an evaluation in April of 1995 in which we concluded that they would reach the screening criteria. At least they were okay until 1999. That evaluation was consistent with the 50.61, the Pressurized Thermal Shock Rule. The current license for Palisades expires in 2007 so they would fall somewhat short of the current operating license with regard to the life of the vessel."], but each time they have been moved back following rejiggering of the assumptions and calculations. In 1995, fox example, the NRC staff noted that the "Palisades RPV . . . is predicted to reach the PTS screening criteria by late 1999, before any other plant."]

The filing continued, as mentioned, until page 23. This filing is incorporated by reference, as if rewritten in its entirety, herein.

On March 17, 2006, environmental intervenors filed PETITIONERS' NOTICE OF APPEAL FROM ASLB DENIAL OF HEARING, AND SUPPORTING BRIEF. This filing is posted online at http://www.nirs.org/reactorwatch/licensing/objections031706.pdf, in incorporated by reference as if rewritten in its entirety herein, and has been submitted for the record of this proceeding.

This filing included these relevant sections: Status of Demetrios Basdekas as Petitioners' Expert on Embrittlement; Appeal of dismissal of Contention No. 1 (The license renewal application is untimely and incomplete for failure to address the continuing crisis of embrittlement).

On March 20, 2006, NIRS and a grassroots coalition sent letters to U.S. Senators Carl Levin and Debbie Stabenow of Michigan, requesting General Accounting Office investigation into RPV embrittlement and PTS at Palisades and reactors across the U.S.

The letters also urged that GAO investigate why -- instead of protecting public health and safety and the environment against such risks -- NRC had instead weakened embrittlement/PTS standards, allowing dangerously deteriorated reactors such as Palisades to continue operating.

These two letters are posted online at:

http://www.nirs.org/reactorwatch/licensing/032006gaorequestltrtolevin.pdf

and

http://www.nirs.org/reactorwatch/licensing/032006gaorequestltrstabenow.pdf.

Both letters are incorporated by reference herein as if rewritten in their entirety. They have also been submitted for the record of this proceeding.

Please note that the signatories to these letters included the following: Citizens Action Coalition of Indiana * Citizens for Alternatives to Chemical Contamination * Citizens For Renewable Energy * Coalition for a Nuclear-Free Great Lakes * Don't Waste Michigan * Great Lakes United * The Green Party of Michigan * Kalamazoo Nonviolent Opponents of War * Lone Tree Council * Michigan Citizens for Water Conservation * Michigan Environmental Council * Michigan Land Trustees * National Environmental Trust * Nuclear Energy Information Service * Nuclear-Free Great Lakes Campaign * Nuclear Information and Resource Service * Nukewatch * PIRGIM * Radiological Evaluation & Action Project, Great Lakes (REAP-GL) * Sierra Club, Mackinac Chapter * Van Buren County Greens * WAND Michigan: Women's Action for New Directions * West Michigan Environmental Action Council.

Note that the Consumers Energy (previous owner of Palisades before Entergy bought it) admitted to the Michigan Public Service Commission in spring 2006 that "Reactor vessel embrittlement concerns" were a primary reason it was selling the plant. This document is posted online at: http://www.nirs.org/reactorwatch/licensing/pg2.jpg. It has also been submitted for the record.

A Consumers Energy official told me directly that the reason the company was selling the plant to Entergy was so that Entergy – a much bigger company with more nuclear power experience and expertise – could fix such problems as the RPV embrittlement. However, no such fix has ever been made, not since ownership transferred in 2007. And Entergy has no plans to make such a fix. But the fix is in, so to speak. Entergy has asked NRC to weaken applicable RPV PTS regulations, yet again, to enable its degraded reactor to keep operating.

On May 18, 2006, a coalition of groups submitted "Halting 20 Extended Years of Risky Reactor Operations and Radioactive Waste Generation and Storage on Lake Michigan at Palisades Nuclear Power Plant" as Comments on NUREG-1437, Supplement

27 to the Generic Environmental Impact Statement for License Renewal of the Palisades Nuclear Power Plant. This document is posted online at http://www.nirs.org/reactorwatch/licensing/cntsnureg1437supplement27.pdf, and submitted for the record. It is incorporated by reference, as if rewritten herein in its entirety.

On pages 26-27, the coalition states:

[XI. Plant Aging Increases Accident Risk

A top concern directly related to the re-licensing of Palisades for 20 additional years, is the aging of the plant, in particular embrittlement, or the gradual weakening of the reactor pressure vessel (RPV) from decades of bombardment by neutrons emitted by the nuclear chain reaction in the core. It is generally acknowledged that the reactor pressure vessel at Palisades is one of the most embrittled in the nation. The longer Palisades operates, the more embrittled its RPV becomes, increasing the risk for Pressurized Thermal Shock (PTS), a condition caused by any number of system malfunctions which can result in a severe, sudden overcooling of the reactor pressure vessel. This, combined with the intense pressurization in a pressurized water reactor, can stress the RPV such that its walls could crack or rupture, leading to a loss-of-coolant accident, meltdown, and catastrophic release of radiation to the entire Great Lakes basin. Age-related failure of Palisades' systems could initiate the sequence of events that leads to PTS. Examples of aging systems at Palisades are evident in this short list of recent incidents:

1. Alert Declared Due to Loss of Shutdown Cooling (Event # 39699 March 25, 2003)
2. Failure of the Control Rod Drive Mechanism (see PNO-III-04-010 August 11,2004)
3. Reactor Manually Tripped Due to Fire in 2B Condensate Pump (Event# 41002 August 31, 2004)
4. Relief Requests for Reactor Vessel Head Penetration problems (NMC Request 10/4/04)
5. Reactor Vessel Head Nozzle Cracking - Through Wall Cracks (Degraded Condition 10/17/2004)
6. Manual Reactor Trip/Main Condenser Vacuum (Event # 41319) 26
7. Emergency Declared on Primary Coolant System Integrity (Event # 41681)
8. Control Rod Stuck in Reactor Core (Event #42569 May 11, 2006)

The embrittlement at Palisades, the unresolved risks of PTS, and the ever-increasing likelihood of the failure of the RPV as Palisades ages warrant special environmental considerations. This type of accident is considered one that goes beyond the design of the reactor. NRC has not, however, included the issue in the EIS nor incorporated it in "Beyond Maximum Credible Accident" scenarios for Palisades as a potential accident. Further, NMC in its Environmental Report, has declined to undertake major refurbishment for Palisades' license renewal, despite Consumers Energy's earlier pledge to "anneal" (super-heat) the reactor pressure vessel. This super-heating theoretically can bring back ductility or flexibility to the metal, thus reducing potential for PTS.

Annealing has never been performed in the U.S., however, and thus raises concerns itself as an experimental procedure. Please include for the record the Adobe PDF document entitled "Palisades Nuclear Plant Yearly Capacity Factors" & "Palisades Plant - Record of Transients or Operational Cycles" for Occurrence #1 dated 1/11/1972 through Occurrence # 126 dated 1/9/2005. This is a record which has major implications for embrittlement and the Reactor Pressure Vessel at Palisades. A hard copy will be sent. Please enter it into the record. Age-related deterioration also increases the likelihood of unintentional leaks, as plant systems, structures and components wear out and fail. Palisades' age-related degradation means increasing amounts of radioactivity will be "routinely" released over time. Plans for addressing embrittlement and other aging issues at Palisades are not provided in NMC's Environmental Reportor in the EIS. Any discussion of 20 additional years of operation at Palisades necessitates a specific plan for addressing embrittlement and aging issues. The most recent NRC report on a potential accident at Palisades, done in 1982, (Calculation of Reactor Accident Consequences or CRAC- 2), predicted that a meltdown and large-scale radiation release from the Palisades reactor would cause 1,000 fatalities and 7,000 injuries in just the first year, 10,000 cancer deaths over time, $52.6 billion in property damage (based on 1980 census, expressed in 1980 dollars, thus significantly underestimating current and future impacts due to population growth and inflation; adjusting for inflation, property damage could exceed $100 billion expressed in year 2005 dollars). The above CRAC - 2 reportdid not take into account a "Beyond Maximum Credible Accident" scenario. We request the EIS provide assessment of the consequences of a "Beyond Maximum Credible Accident" as Palisades' embrittlement status increases the likelihood of such an accident.]

In June, 2011, Jeff Donn of the AP published a four-part exposé on nuclear power safety risks. In his first article, "US nuke regulators weaken safety rules," Donn pointed to rollbacks on PTS standards as the top example of this. See:
http://www.ap.org/company/awards/part-i-aging-nukes

Palisades suffered numerous serious accidents in 2011. One, on September 25, 2011, led to an NRC "yellow finding," and landed Palisades on NRC's short list of worst performing reactors in the country. See:
http://www.beyondnuclear.org/home/2012/1/25/palisades-its-an-accident-waiting-to-happen.html, including a link to a major, front page exposé in the *Detroit Free Press*:
http://www.beyondnuclear.org/storage/Freep%201%2015%202012.pdf.

That very incident, as revealed in NRC's own inspection report, pushed a number of Palisades' degraded systems, structures, and components to the breaking point:
http://archive.freep.com/assets/freep/pdf/C4183882113.PDF

Although the ECCS was inadvertently activated, it did not completely work. If it had, the risk of PTS would have been increased even further than it was during the accident.

Embrittlement risks and NRC's weakening of PTS safety regulations to accommodate Palisades was a major subject matter of discussion with NRC Chairman Jaczko at Beach Haven Event Center in South Haven on May 25, 2012. Michael Keegan of Coalition for a

Nuclear-Free Great Lakes, and Don't Waste Michigan, facilitated the presentation made by two dozen environmental group representatives and concerned local residents. The environmental watchdogs expressed skepticism and deep concern when Chairman Jaczko indicated that, if Palisades RPV could not meet embrittlement standards, the methodology could be adjusted. We protested such pencil whipping, such weakening of public health, safety and environmental protections. See http://www.beyondnuclear.org/home/2012/5/26/environmental-coalition-concerned-residents-met-with-nrc-cha.html.

I handed copies of the following to Chairman Jaczko and the entire NRC entourage who accompanied him:

"*Aging Nuclear Power Plants focusing in particular on irradiation embrittlement of pressure vessels,"* by Ino Hisamitsu, published in Nuke Info Tokyo No. 148 (May/June, 2012), posted online at http://www.cnic.jp/english/newsletter/nit148/nit148articles/irradiation_embrittlement.html.

Despite handing out copies to a large number of NRC officials, including the chairman and regional administrator, I never heard back from them about the concerns raised in this article.

The article was continued in the next issue of the newsletter:

"***Aging Nuclear Power Plants focusing in particular on irradiation embrittlement of pressure vessels,"*** by Ino Hisamitsu, published in Nuke Info Tokyo No. 149 (July/August 2012), the newsletter of CNIC Tokyo (Citizens Nuclear Information Center). This article is posted online at http://www.cnic.jp/english/newsletter/nit149/nit149articles/06_aging.html

Embrittlement concerns were also central to the discussion when NRC Commissioner William Magwood IV met with environmental group representatives and concerned local residents at Beach Haven Event Center in South Haven on March 25, 2013. See: http://www.beyondnuclear.org/home/2013/3/27/coalition-of-concerned-citizens-details-concerns-about-palis.html

As mentioned above, PTS risks at Palisades was also a central issue discussed with NRC Chairman Macfarlane on June 5, 2014 in Benton Harbor. See: http://www.beyondnuclear.org/nrc/2014/6/4/residents-environmental-groups-elected-official-meet-with-nr.html

In conclusion, a large number of environmental groups and concerned local citizens have long objected to weakening PTS safety regulations at the badly embrittled Palisades atomic reactor. Our concerns only grow deeper as time goes on, and the embrittlement worsens. NRC must not weaken its PTS regulations yet again to enable Palisades to keep operating. The risks are too great.