

DG-1053

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Comments from Don't Waste Michigan on DG-1053  
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Comments on Draft Regulatory Guide DG-1053:

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US NRC

**"Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence"**

Under Implementation on pg. 29 of DG-1053 it is stated that the draft regulatory guide is being released to encourage further "public participation" in its development. We question how the public can participate in the development of this guide when the language used in the guide is such that the average member of the public would find it next to impossible to decipher what is actually being proposed. Public participation is precluded without a genuine effort on the part of the NRC to make the language used in the draft guide intelligible to the average citizen who might wish to make comments.

We are specifically requesting public working groups at which the NRC sits down with members of the public and explains in language that is understandable to the public what is being proposed. Until that time, "public participation" is but a sham, serving to lock out participation by the public. Let us proceed to operate in the light of day rather than in rarefied jargonize designed to cloak comprehension.

After extensive review of the long document trail by industry and NRC, the following serve as our comments. These comments are not exhaustive of our many related concerns, particularly the continued generation of High Level Nuclear Waste for which the NRC and Industry do not have a viable plan.

**Comments:**

In the section entitled Regulatory Analysis, beginning on line 19 it is stated that, "The neutron fluence is attenuated by several decades between the core and vessel. This attenuation results in a strong sensitivity of the calculated vessel fluence to the physical description of the core and vessel internals and the numerical calculation of the neutron transport, and it makes an accurate determination of the pressure vessel fluence difficult." There are obviously enormous complexities and uncertainties involved with calculating fluency.

These complexities result in many discrepancies between measurements and calculations and even the measurements themselves are based on uncertainties. The whole effort by the licensee to reduce these discrepancies by relying on best estimates is unsatisfactory in safeguarding public safety. Public safety comes first.

The best guess estimate does not provide a high margin of safety. What is needed is an upper bound criteria for fluency so as to have high probability that reactor vessel is not embrittled. Instead what is proposed is a lower bound criteria. Again these parameters are particularly challenged as the reactors age. Other variables specific to reactors come into play. The high number of SCRAMs experienced by the Palisades reactor have compounded the stress on that

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vessel. Criteria must be more stringent, not less. This is clearly counter to the interest of public safety.

The burden of proof for a safety standard with high confidence that the reactor has not exceeded embrittlement must be placed on the reactor owners. The Nuclear Regulatory Commission must not set the bar artificially low to accommodate the continued operation of known embrittled plants.

The Draft Regulatory Guide DG-1053 relies on a 20% uncertainty margin. This is a very large degree of variance. Increased specificity should be employed with these advanced embrittled / aged plants. Criteria should become more specific not less. This is not in the interest of public safety.

Proposed guidelines in general are being streamlined precisely at the time when increased scrutinization is needed to assure public safety. Reference to cost reduction of staff hours and inspections should not be a driving force to establishing new criteria. The cost of a core melt accident must be kept in mind. The cost of fifteen additional staff weeks is minimal comparatively to that of a LOCA. Do not cut corners. Do not deregulate under the guise of staff cost reductions. It is the Nuclear Regulatory Commissions' mandate to regulate. The cavalier laissez faire dynamics at the NRC is courting a core melt accident.

The complexity of methodologies being utilized and proposed will result in a built in bias of generating great discrepancy in the outcome data. This pulverization of data into oblivion will mask an embrittled reactor. The adage of "if you don't know, baffle them with bullshit" comes to mind. Systematically the NRC is attempting not to know. Plausible Deniability does not cut it.

Standards have been recalculated, reduced, relaxed, and seem to rely on "we haven't had a LOCA yet...so it must be okay." Operating reactors must not serve as the destructive test. And then followed by "Oops!". These are calculated decisions by the NRC. The criteria must be based on sound methodology not a convoluted and complex manipulation and massaging of the data to render a pro industry bottom line. The later constitutes capricious and arbitrary operation of a nuclear facility. Culpability?

At the very hour when standards must be more stringent to prevent pressurized thermal shock because of high probability of increased embrittlement, the standards are being less scrutinized revised and relaxed. Such counter measures will have increased likelihood of a reactor being shattered resulting in LOCA. To assure public safety there is need for increased inspections with more stringent standards not relaxed standards and streamlined inspections. The NRC's first responsibility is to the public and its safety rather than to the financial interest of the licensee.

Streamlining and standardizing methods and procedures that would allow reviews to be greatly simplified as described under section entitled Regulatory Analysis is not in the interest of the public. Each plant has its own set of specificities and to attempt to standardize a methodology to be used to determine fluency at all plants may result in saving time and money but it is not in the public's interest or safety. As stated by Richard Maerker, consultant to Consumers Energy

Company in 1996/1997, in a letter to Ross Snuggerud at the Palisades Nuclear Plant, "...aren't all reactors subject to their own plant specific sources of uncertainty?..." Each plant needs to be looked at on an individual basis when determining fluency through the time consuming method of individual reviews and discussions so as to reduce uncertainties to the greatest extent possible.

What has been the history of NRC standards? Please include a detailed history of the progression from one set of NRC standards to the next set of standards in the "Introductory" section of subsequent Draft or Final Guides on Embrittlement / PTS.

How important is this Draft Reg. Guide in terms of a specific plant, Palisades for example, in its determining how much flexibility it has in calculating its fluency numbers?

Embrittlement criteria should not be custom based on Palisades or Beaver Valley. These plants are known to have exceeded embrittlement standards set by the NRC as early as 1981. Establishment of criteria in order to allow continued operation of embrittled plants will compromise standards industry wide. Since that time NRC standards were changed several times. Each time the Palisades would exceed the new benchmark.

May 17, 1990 - In the document OC0590-0016-NL02 - "Palisades Plant - Compliance with Pressurized Thermal Shock Regulation 10FR50.61 and Regulatory Guide 1.99 Revision 2 (TAC No. 59970)", the NRC stated that "PTS screening criteria will be exceeded at the axial welds in September, 2001, as opposed to the previously reported exceed date of March, 2002."

The NRC identified the Palisades RPV in NUREG-1511 (1994) as one which may exceed the PTS screening criteria before the end of its current operating license. A re-evaluation by the Palisades' licensee in 1995 concluded that the Palisades' RPV would not exceed the PTS screening criteria before the end of its operating license. The NRC staff did not agree with the licensee's analysis. The NRC staff concluded in December 1996 that the Palisades' RPV would exceed the PTS screening criteria near the end of 2003. The NRC staff and the Palisades' licensee have continued to discuss this issue since December 1996. However, no change to the 2003 date has been accepted by the NRC. (TIP:7 - Reactor Pressure Vessel Embrittlement. September 1999 from NRC Technical Issues Index | News and Information | NRC Home Page | E-mail)

Now comes a Draft Regulatory Guide to reset the clock. Magic!

What engineering and metallurgical documentation served as a basis to relax previous standards? Please specify each set of documents for each subsequent relaxation of embrittlement standards.

Of particular concern is the Palisades nuclear reactor which has exceeded NRC embrittlement standards as early as 1981. With each benchmark for embrittlement exceeded the NRC has rewritten and relaxed the standards. How is it that embrittlement standards are repeatedly relaxed?

Embrittlement standards must reflect an absolute with a safety margin that has high probability of success. The relaxation of standards reduces the probability of a reactor being able to withstand

pressurized thermal shock. Palisades has experienced above industry standards for SCRAMs.

At Palisades scrutinization has focused on 1/8th of the reactor circumference. What of the remaining 7/8ths of the reactor. NRC must develop methodologies which find the most embrittled sections of the reactor. The adage that a chain is only as strong as it's weakest link certainly applies here. If there is one portion of the reactor that is embrittled and succumbs to pressurized thermal shock this will serve as the weakest link.

Because of this, averaging of embrittlement should not be allowed. This essentially waters down the data and falsely projects a margin of safety. Again the most embrittled portion of the reactor must be the focus for each and every reactor. Industry averaging convolutes rather than clarifies. Err on the side of caution.

At Palisades sample materials have been exhausted as of the 5th refuel cycle. There are no samples remaining which have experienced neutron bombardment from start up. Inferences on samples added after start up can not be relied on with high confidence methodologically. How are these samples related to the most embrittled portions of the reactor. How can the most embrittled portion of a reactor be identified? The entire reactor must be examined and the most embrittled portion is indeed the weakest link. This speaks to increased inspection and scrutinization. Send the bill to the utility. This is the price of doing business. True costs must be placed on the table.

The practice of utilizing fuel which has been through the reactor for more than two cycles on embrittled portions of a reactor to reduce neutron bombardment compromises the fuel cladding which must be intact to assure stable storage. This practice is underway at the Palisades nuclear reactor. This segmentation of entire spent fuel disposition merely shifts risks to other areas of operation.

What metallurgical analysis has been performed on reactor metal that has been neutron bombarded since start up. Has destructive testing occurred? Proxy indicators have little value because each pressurized water reactor has specific metallurgical composition. Minute variances of copper and nickel in the reactor steel have great impact on a reactor reaching embrittlement.

Oct. 28, 1994 - In a document titled "Status of Reactor Pressure Vessel Issues", SECY-94-267, NRC stated that "...all except two plants will be below the pressurized thermal shock (PTS) screening limits at the end of their current operating licenses. On the basis of the currently docketed information, Beaver Valley 1 and Palisades are the only plants projected to potentially exceed the PTS screening limits before their licenses expire unless mitigative actions are taken. Beaver Valley Unit 1 and Palisades are projected to exceed the PTS screening limits in 2012 and 2004, respectively, before the end of their operating licenses in 2016 and 2007." (NRC Website TIP:7 September 1999).

The NRC must not cook the books to accommodate Beaver Valley and Palisades. To do so compromises the entire industry, and can lead to decisions not to mitigate to prevent embrittlement. This would increase the overall probability of an accident somewhere in the industry. Stop twisting the tiger by the tail!

Specifically what comments were made by the public thus far on embrittlement, and how have they been incorporated into decisions reflected by this draft guide? The NRC and Industry meetings / correspondence must be absolutely transparent. Agreeing to agree on standards will not instill confidence in proceedings. Objective public comments and observations must be garnered (those observations void of financial conflict of interest) without them, the risk of self dealing with systematic bias can result.

Thank You for your review of our comments. We are watching these proceedings closely. If you should have any request for clarification on our comments please contact Alice Hirt @ Phone # ~~XXXXXXXXXX~~

Respectfully Submitted on behalf of Don't Waste Michigan

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