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Technical Basis for Regulatory Guidance on the Alternate PTS Rule

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Comment On: NRC-2014-0137-0001
Draft Guidance Regarding the Alternate Pressurized Thermal Shock Rule

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General Comment

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As your NUREG implies, neutrons are not the only thing causing embrittlement of nuclear reactor pressure vessels (RPV) and they are aging faster than the models predicted and you must test all RPVs. If not, you are guilty of criminal negligence: "If they are statistically significant, Type A, B, and D deviations all give rise to concerns that the embrittlement trends predicted by the ETC may produce non-conservative estimates of the embrittlement experienced by materials used to construct the RPV that is being evaluated... Type C deviations, if they are statistically significant, suggest that the surveillance program for the material in question may not provide a reliable indication of embrittlement trends for that material. Because Appendix H to 10 CFR 50 requires the performance of surveillance on the limiting (meaning most irradiation-sensitive) materials used to construct the RPV beltline, the existence of a Type C deviation is important from a regulatory viewpoint," (p. 27) The sentence continues with NRC typical nonsense: "but not in the context of indicating a potential non-conservatism in the predictions of the T30 ETC adopted in the Alternate PTS Rule. For this reason, statistical procedures to detect Type C deviations were not included in the Alternate PTS Rule..." (p. 27)

Dr. Digby McDonald, US corrosion expert, who has done research for the DOE, similarly remarked that the Belgium nuclear reactors had more flaws than the models had predicted. He says all reactors in the world need to be properly tested with ultrasound. You cannot depend on theoretical models. All RPV must be tested on a sensitive setting. Any of the material test samples within the reactor must be removed and tested now and not later.

Not only do neutrons cause embrittlement, which can lead to reactor pressure vessel failure, hydrogen attack can also lead to nuclear reactor pressure failures, as can corrosion. They all work together synergistically to weaken the nuclear reactor pressure vessel. They must be evaluated together on each unique nuclear reactor pressure vessel.

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E-RFDS = ADM-03
Add = To Stevens (JLSK)
M. Kirk (mTK) — S. Milton (5x63)

This NUREG is fraudulent because whereas pressurized thermal shock of PWRs is more likely to cause sudden RPV failure, it can happen at any time and also with Boiling Water reactors. Pressurized reactors are more at risk, but all are at risk. It's not just a shift to cold temperatures which can cause it. The petroleum industry shows that hydrogen attack can happen under heated conditions. Also, neutron bombardment shifts the ductile-brittle transition upwards so that they can fail even under normal operating conditions. Davis Besse's RPV showed the dangers of corrosion.

As the Belgium regulated learned, the ultrasound must be placed in the most sensitive mode or defects can be missed. To be conservative they lumped smaller defects together, assuming that they could merge to one. Your NUREG is doing the opposite and de-clumping defects and falsely assuming that the ultrasound over-estimates. Furthermore, you can NOT assume that thickness matters and that cracks inside do not matter, as you do. The neutrons can most certainly impact the middle of the material and the hydrogen may as well. With brittle fracture thickness matters much less than material quality. You must test the entire thickness.

Additionally you must test each nuclear RPV thoroughly or shut them down. Each nuclear reactor is unique in manufacture, construction, and operating history. You cannot extrapolate from a few to all, except to conclude that ALL must be tested!

This NUREG is an F - in Methodology and Stats. To start being statistically significant you must have at least 50 of whatever you are studying and for testing go up to 120 or more. This is true in both science and social science. The entire population of US reactors is 100 and 2/3rds are PWR. Thus, you have to test all of them. You cannot test 2 or 3 and extrapolate to the others, as you seem to be doing. It's like saying that your neighbor's vote will tell you the result of an election. And, when you do your little tests of whatever you are testing - which isn't really clear and which seems to be strictly theoretical - whatever you are testing you need 50 to 120 or more data points for each reactor and not hovering around 3 to 8 and within a zero to 24 range. This is not statistically significant even if you are measuring something which matters. Furthermore the 50 to 120 data points themselves must have meaning and significance and not be some weird theory like stock derivatives.

So pitiful is the state of these nuclear reactors, that even your incomplete and lamentable stats show that they are aging faster than the models predict. They must be shut down now.

Stop cheating with statistics & trying to kill everyone & everything. This is my love letter for the trees, plants, animals & the unborn children. Shame on you.