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P. Clifford (PHC3)

Comment: RIL 0801

September 6, 2008

I recently became aware that the NRC is soliciting Public Comments on Documents Under Consideration To Establish the Technical Basis for New Performance-Based Emergency Core Cooling System Requirements and that Comments on these documents should be submitted by September 5, 2008. The NRC announced the availability of Research Information Letter (RIL) 0801, "Technical Basis for Revision of Embrittlement Criteria in 10CFR 50.46" and NUREG/CR-6967, "Cladding Embrittlement During Postulated Loss-of-Coolant Accidents," and it is seeking public comment on these documents.

It is interesting that the NRC solicits Public Comments related to crud deposition as follows:

II. Performance-Based Testing Requirements

3. *Crud deposits on the fuel cladding surface may affect fuel stored energy, fuel rod heat transfer, and cladding corrosion.*
- What role does plant chemistry and crud deposits play on these items?*
 - How should normal and abnormal levels of crud deposits be addressed from a regulatory perspective?*

This is interesting because the word *crud* is not in RIL 0801 and it appears only once in NUREG/CR-6967. Each document has no discussion that focuses on crud.

On page 14 of 18 in RESEARCH INFORMATION LETTER 0801 I read:

Flow blockage in pressurized-water reactor (PWR) fuel assemblies and BWR fuel bundles could occur if ballooning took place in many adjacent fuel rods. Since most rods in the hot regions of the core will balloon and rupture near their peak power elevation, such blockage is possible. In a PWR 15x15 geometry or a BWR 9x9 geometry, a diametral strain of 67 percent on one rod will cause it to touch an undeformed adjacent rod. If both rods ballooned at that elevation, half that strain would be required for touching. Data show that, once adjacent rods touch, they do not stop ballooning, but they begin to wrap around their obstacles.

And on page 15 of 18 in RESEARCH INFORMATION LETTER 0801 I read:

A substantial amount of research on ballooning and flow blockage was conducted in the 1980s after the NRC issued NUREG-0630, yet the correlations in NUREG-0630 have not been updated. The Institute of Radiological and Nuclear Safety (IRSN) in France prepared a recent review of all these results (Ref. 5). That report claims that the 71-percent maximum blockage value is no longer supported by the experimental data and should be revised upward.

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Crud deposits on the fuel cladding surface will significantly increase blockage and it is pointless to discuss the impact of ballooning on flow blockage without including the impact of crud. The Office of Nuclear Reactor Regulation, the Office of New Reactors, and the Office of Nuclear Regulatory Research must be required to include crud in their evaluations of fuel performance, including the performance under accident conditions. The exclusive participation by NRC's site inspectors in crud related activities at nuclear power plants is unacceptable.

It is also ridiculous, that under the exclusive purview of NRC's site inspectors, the complex process, ultrasonic fuel cleaning, has been effectively licensed via 50.59 evaluations.

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A handwritten signature in black ink that reads "Robert H. Leyse". The signature is written in a cursive, flowing style with a large initial 'R'.