GE Nuclear Energy

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ADJUDICATIONS STAFF

Mr. Michael T. Lesar
Chief, Rules and Directives Branch
Division of Administrative Services
Office of Administration
Mail Stop: T-6 D59
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001.

Subject: **GENE Comments on Petition for Rulemaking, PRM-50-73 (*Federal Register* of October 12, 2001, 66 FR 52065)**

Dear Mr. Lesar:

The NRC has published a notice of receipt of a petition for rulemaking that was filed by Robert H. Leyse. The petitioner requests that the NRC amend regulations on the acceptance criteria for emergency core cooling systems for light-water nuclear power reactors to address the impact of crud on cooling capability during a large-break, loss-of-coolant accident (LOCA). GE Nuclear Energy (GENE) offers the following comments regarding the proposed petition.

The crud deposition for the event described in the petition was a unique event and is not typical of the crud buildup in BWRs. Even with the extensive crud buildup observed in this one case, the core remained in a coolable configuration throughout the cycle and would have remained in a coolable configuration during a LOCA. The bases for this conclusion are:

1. A review of the core pressure drop before and after the core event revealed only a minor impact on the core pressure drop. This indicates that the overall core flow resistance was not significantly affected and there was no extensive flow blockage in the fuel channels.

2. The flow rates in the core region during the blowdown phase of a LOCA are no higher than the flow rates seen during normal operation; therefore, the LOCA would not result in any flow blockage by the crud.

3. The crud that was deposited during this event was very fluffy and when brushed off, dissipated in the water as a fine powder. Therefore, no flow blockage would result even if the crud were disturbed during the blowdown phase of the LOCA.

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4. The safety evaluation performed as part of the disposition of this event demonstrated that even with the crud deposition there would be substantial margin to the 2200°F peak cladding temperature acceptance criterion specified by 10CFR50.46.

5. The current LOCA analyses account for typical crud buildup in the thermal-hydraulic evaluations. However, for the LOCA heatup calculation, the cladding is assumed to be clean in order to maximize the heat contribution due to the metal-water reaction and maximize the calculated peak cladding temperatures.

6. All of the fuel rods are assumed to fail in the 10 CFR Part 100 analyses for the radiological consequences of a LOCA. Therefore, the crud does not pose a threat to the vessel and containment barriers that provide the defense in depth protection.

7. The petition refers to a condition that occurred during one operating cycle for one power plant. This condition has not reoccurred for the plant in question nor has it ever occurred in any other BWR.

Since this crud deposition was a unique event and is not typical of the crud buildup in BWRs, it is inappropriate to revise the regulations to require that all plants design and analyze for this unique event.

GENE appreciates the opportunity to comment on the petition for rulemaking. Please contact Dan Pappone (408-925-5320) if you have further questions.

Sincerely,

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