From:	Krepel, Scott
To:	tgurdziel@twcny.rr.com
Subject:	Response to 6/8/2021 Comments on Severe Accident Management
Date:	Thursday, July 29, 2021 9:06:00 AM
Attachments:	06-08-21 Gurdziel 21-0191.pdf

Mr. Gurdziel,

Thank you for your letter dated June 8, 2021 that you sent to the “Chairman Resource” (attached for your reference) and via mail, which details your thoughts on severe accident management at commercial nuclear power plants.

The design basis accident which would result in potential loss of core cooling is a hypothetical loss-of-coolant accident. Regulatory requirements in 10 CFR 50.46(b)(1-3) in combination with 10 CFR 50.44 ensure that the hydrogen generated during an accident is maintained at an acceptably low level. While most licensees evaluate the acceptance criteria in 10 CFR 50.46(b)(1-3) for short time frames, 10 CFR 50.46(b)(4-5) also contains requirements for long-term cooling of the core. A defense-in-depth strategy is employed to ensure that emergency core cooling systems perform their design function to meet the above acceptance criteria. These measures incorporate concepts of worst single failure and mitigating strategies to ensure cooling remains robust.

Given the regulations referenced above, the NRC believes it has adequate regulations and guidance in place to establish reasonable assurance that the kind of scenario detailed in your letter will not occur. However, nuclear utilities do have strategies in place to mitigate the consequences of a severe accident as detailed below.

Severe accident management includes a set of actions to limit effects of an accident that results in significant damage to fuel. Even if the core were uncovered for a prolonged period, the focus is on restoring adequate core cooling to stop the progression of fuel damage and limit the radioactive release to the environment. The nature of severe accident management guidelines (SAMGs), which are established by industry, is to delineate a set of strategies for the response to symptoms of a severe accident. These strategies traditionally rely on the use of existing equipment and instrumentation with alternatives or compensatory measures as necessary. In developing the SAMGs, analyses are performed using state-of-the-art, fully integrated, engineering-level computer codes that model the progression of severe accidents. Per SAMGs, operator actions include reactor coolant system pressure control and injection recovery, containment pressure control through venting and sprays, hydrogen control, and various strategies for severe accident water addition and management. Also taken into account are the potential failures of operator actions, inaccurate diagnosis of plant conditions, and uncertainties in the severe accident simulation.

Thank you again for your letter and I hope this response has been helpful. As always, members of the public are free to engage in the petition for rulemaking process if they believe NRC should adopt new regulations or revise existing regulations. Instructions on how to submit a petition for rulemaking can be found on our public website (www.nrc.gov).

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