

Rulemaking Comments

From:	Tom Gurdziel [tgurdziel@twcny.rr.com]	March 28, 2012 (9:00 am)
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To:	Rulemaking Comments	OFFICE OF SECRETARY
Cc:	'Lyon, Jill'; 'Holden, Tammy'	RULEMAKINGS AND
Subject:	Docket ID NRC-2011-0299	ADJUDICATIONS STAFF

D. Functional Considerations and Requirements for Supporting Structures, Systems, and Components and Procedures

Response for Questions 1 – 5

At a government regulated nuclear power plant site in Japan, on March 11, 2011 it appears that ALL Safety-Related structures, systems, and components were unable to function to save the nuclear fuel cores of 3 operating nuclear plants. You might conclude that would be a 100% failure rate but I believe you would be wrong. You see, due to the use of a money-saving(?) common, (shared) ventilation exhaust stack, explosive gasses from one of the (previously) operating units, (Unit 3), were able to enter and destroy Unit 4. So, I would calculate the failure rate at 133%.

Since then, I have not had a lot of confidence in equipment classified as "Safety related" for being particularly reliable or available.

What would be the alternative? I believe the FLEX idea of the industry, (as I currently understand it), is the proper choice. With it, the owners have responsibility for reactor core cooling in a SBO accident.

In order to have some confidence that this will work, NRC site inspectors MUST be given the power and responsibility to hold unannounced timed drills at any day, time, or at any frequency. Failure to provide pressurized water (or a certain mobile generator voltage) MUST result in immediate NRC Enforcement action of no less than 6 figure fines each time the 2 hour (or site specific) time is not met, and another unannounced test within 7 days.

Since we are worried about external events that affect ALL units, a surprise test announced to the control room staff at one unit must be participated in by ALL UNITS ON THAT SITE.

E. Applicability to NRC Licenses and Approvals

Response to Questions 1 – 6

SBO requirements should apply to all operating nuclear plants.

F. Relationship Between Existing Station Blackout Requirements in Title 10 of the Code of Federal Regulations, Section 50.63 and the New Station Blackout Requirements

Response to Questions 1 – 3 No opinion

G. Advisory Committee on Reactor Safeguards Recommendations

No comments at this time.

Final Words

I do not feel that BWR plants with fully (& appropriately) equipped Emergency Condenser systems should have much of a chance of their reactor core melting during a SBO. Since the reactor core decay heat ends up outside the Reactor Building without entering the drywell or torus, primary containment should not be challenged either during a SBO, (at least for the intermediate term.)

I have no operating experience with non-Emergency Condenser-equipped BWRs. It is my understanding that they use steam from the reactor to power turbine-driven pumps to supply water from the Condensate Storage Tanks, then from the torus (or suppression pool) to the reactor vessel. Here, some steam energy from the reactor vessel is used up doing the pumping. However, the waste/exhaust heat is discharged into the primary containment.

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Anyway, suppose you are in a SBO and, after some relatively short period of time, your Emergency Condensers or your HPCI and your RCIC fail and cannot be restarted. What do you do now? I think you have about 2 hours to get fire system water into the reactor vessel (where the presently coolable-geometry core still is.) As I understand the present rules, your station diesel-powered fire pump is available for this use. It probably will not deliver any water to the reactor vessel until pressure in the reactor vessel is 100 psig or lower.

Can you promptly and adequately vent the primary containment so you can get the reactor vessel to 100 psig and then provide a sufficient amount of water to keep the nuclear fuel from melting?

Additional Concerns

At what set of conditions, (maybe even prior to the loss of coolable geometry), would flooding of the primary containment be advisable?

What is to be done when all emergency power boards are disabled?

Thank you,

Tom Gurdziel