From: Tom Gurdziel <tgurdziel@twcny.rr.com>
Sent: Tuesday, November 21, 2017 9:53 PM
To: judys@enr.com
Cc: CHAIRMAN Resource; Hannah, Roger; techols@psc.state.ga.us; Bridget Frymire; ESTRONSKI@aol.com
Subject: [External_Sender] When calculating AP1000 reactor vessel life, are passive failures acknowledged or ignored?

Hi Scott,

AP 1000 Life

There is a story that needs to be prepared by someone, maybe not you, on AP1000 reactor vessel life. The big selling point for the AP1000 is the fact that it is a passively cooled plant (in an accident). It does not need electric or steam powered pumps to provide cooling water to nuclear fuel then. Also, there are other things around the nuclear fuel and they would need to be cooled too. This would include control rods, reactor vessel internals, baffle bolts, and the reactor vessel itself. Reducing the weight of these items would reduce the amount of cooling (water) needed or extend the amount of cooling time a specific amount of cooling water will provide.

And that is what I think has been done, at least with the weight of the reactor vessel because I think the AP1000 reactor vessel is about 1/3 the weight of the Nine Mile Point, Unit 2 reactor vessel. (I realize that one is a PWR and one is a BWR but I think both have approximately the same output.)

Now here is the story. Does a lighter weight reactor vessel, whose metal is exposed to damaging radiation energy during its life have a shorter lifetime than that promised the owner by the design engineer (based on other factors)?

A More General Concern

First let me take a moment to say that the reactor vessel is a passive component. If it fails, the failure would be classified as a passive failure. Why is this of particular interest? When I was involved with PRAs, (probabilistic risk assessments), for two operating nuclear plants some 20 years ago, only failures of active equipment were considered. <u>Passive failures were ignored.</u>

The general concern before us today is this: do some nuclear plant-disabling passive failures actually occur sooner that active failures? And if they do, can we expect them before 80 years? Or before 60 years? Or, even sooner? Are they repairable? If so, how many times? At what cost of time and at what cost of money?

Or is repair economically impossible?

Thank you,

Tom Gurdziel

I think an example of passive failure is the recently identified baffle bolt problem at the two operating Indian Point (PWR) plants.

Best regards,
Zarva

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