

CHAIRMAN Resource

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Sent: Friday, November 14, 2014 10:09 PM
To: CHAIRMAN Resource
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Subject: Nov. 14, 2014 Comments on National Academy of Science Fukushima Lessons Learned Report
Attachments: In the Simulator.jpg

Good morning,

Protecting the People

It seems clear that our original way of thinking about commercial nuclear plant danger needs to change. We did not know all possible accident-initiators that might arrive at a nuclear plant site. So the collection of design basis accidents we have now is inadequate. (Not to mention that they have traditionally only been applied to one unit on site at a time.) What is needed is a change to responding to symptoms that are identifiable. Now, and for some time, we have had symptom-based EOPs, (Emergency Operating Procedures), in the US. However, from my reading of the NAS Fukushima report, it appears to me that, in Japan, they are still using event-based initiators. (Ref. bottom of page 109, NAS report: "contained only internal events as causal events".)

So, how would you know a tsunami, (actually, tsunami waves), are predicted to strike your power station site? Here is how it happened at Fukushima Daiichi. The site superintendent learned of it, not from direct communication(s) to his site, but rather, "from TV news reports." (Ref. bottom of page 107, NAS report)

Shouldn't there be direct communication to the site of predictions of external event threats?

OK, so now we can depend on receiving external event predictions and have symptom-based, (AM), accident management procedures. A change in operating philosophy comes next. Remembering that the need is to first protect the people in the general public and also those working at the plant, we now need to put protecting the reactor core ahead of protecting each individual safety system. This means there are no longer automatic RCIC system trips or isolations in an accident: they have been changed to "alarm only" and use the real time knowledge of operators to manually, (locally or remotely), trip or isolate if necessary (in the opinion of the unit's operators only.) (There will be no Emergency (Isolation) Condenser isolations on anticipated loss of power either.)

To be clear, let me say it this way: the "fail-safe" position of a safety-related system during an accident is not isolated and not tripped, it is IN OPERATION. So, all that subtle, let's-isolate-it-before-it-loses-power logic must be removed.

But we are not finished yet. What we have to this point is good for a one unit site, but does not account for a coordinated effort for all units on a multi-unit site. Important for a multi-unit site, in my opinion, is single point, strong, knowledgeable leadership.

A good example is the Tokyo Electric Power Company's Fukushima Daini site. There, going through the night of March 11, 2011, leadership directed a search to determine what was damaged, what needed to be replaced, where replacement items were located, and how to get reactor core cooling reestablished for all 4 units on the site.

They were successful. (Ref. INPO 11-005 Special Report Addendum, pages 15 & 16, and, especially, NAS Meeting Three, slide numbered 10, "Recovery Actions toward Cold Shutdown" of the presentation: "East Japan Earthquake on March 11, 2011 and Emergency Response at Fukushima Daini Nuclear Power Plant")

It does not seem to me that high level management on the Daini site were content to sit back and maintain "a big-picture perspective", although that is what is actually quoted in SIDEBAR 4.2. (Ref. NAS report pages 146, 147 quoting from TEPCO's "Fukushima Nuclear Accident Analysis Report", p. 55)

In particular, (also in SIDEBAR 4.2, NAS report p. 146 & 147), I consider the statement: "TEPCO anticipated and trained its operators for the situations they encountered at Fukushima Daini and the response was effective," to be completely false. Their success was due to highly technically competent leadership there.

Each site needs a set of procedures to be used by the site superintendent, as head of the (ERC) Emergency Response Center in directing all site actions, including the lower tier actions of each unit on site.

Thank you,

Tom Gurdziel
Member, ASME

In early 1980, crews in the simulator would have been using the old, Symptom-based EOPs, (Emergency Operating Procedures). My father-in-law, John "Jack" Shea, is at the left. I believe this is the General Electric simulator at Morris, Illinois.

