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Good morning,

### Earthquake-(or other)-caused Foundation Cracks

Over at the Tokyo Electric Power Company Holdings/Fukushima Dai ichi site, I see time moving forward but progress at a standstill. With 7000 site employees and at five plus years, they have no implementable plan that I see.

They did remove nuclear fuel from the Unit 4 elevated spent fuel pool. And they have cleared (removed) refuel floor obstructions at Unit 3 in preparation for installation of a working refuel bridge. But that did not happen.

There is a lesson that has not been identified. It is this: if you are running a commercial nuclear powerplant today with cracked foundation walls or slabs and the way you keep the building dry is with your exterior perimeter drain system, you are accepting a very big risk. The risk is that, in a very severe nuclear accident, you will not be able to establish closed loop cooling of the corium (due to groundwater flow into your buildings).

So, I would think that those plants doing a lot of perimeter drain pumping should shut them off for a couple of weeks and look for water in the basement(s). Then, take immediate steps to stop any water inflow.

At Fukushima Dai ichi, with cracked foundations, another strategy may be appropriate: fill the basements with sand and gravel and fine-grained soil. Right now, I think of the basements of 4 units, (1, 2, 3, 4), as very big sumps in the ground. By filling them in, at least somewhat, their effective size may be reduced, and, hopefully, the amount of groundwater flowing in as well.

Thank you,

Tom Gurdziel



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