Japan's Information Deficit

Posted: 13 Mar 2011

By Roger Witherspoon

Information is vital in times of calamity.
Unfortunately, it is difficult to determine the exact status of the situation with Japan's 10 endangered nuclear power plants since the government is closed mouth and there is no tradition of investigative journalism when it comes to the government backed nuclear industry.
The government's statements that "small" amounts of radioactive material have been released are at odds with a) the numbers of people being evacuated and b) the known material in those reactors.
The MOX fuel is particularly nasty. According to the folks at Tokyo Electric, "six to 10 feet of the core" has been uncovered — and the fuel rods are only 12 feet long.
That means nearly the entire core is exposed and the hail mary operation is not working.
Which brings us back to MOX.
The normal fuel used in nuclear reactors is uranium 235. After the fission process, the 12-foot-long fuel rods have morphed into a basket of radioactive, fissionable and non-fissile elements. About 1/3 of the irradiated fuel rod is plutonium, and the different elements are mixed throughout the spent fuel, not neatly differentiated like a candy cane.
The reprocessing cycle — which the industry likes to call "recycling" as if it is nice, neat, and environmentally friendly — leeches out the plutonium, molds it into a 4-foot rod, and mates it to a new, clean, 8-foot uranium rod. This saves the French government 1/3 of the cost of new fuel.
Yes, there is a big cost to reprocessing, which is why American firms do not consider it economically viable. But since the French government pays for reprocessing, the true cost doesn't show up in the profit/loss statement. France, remember, is a socialist country where the government owns 90% of Areva, the nuclear company, and 100% of the domestic electric utility.The MOX fuel, therefore, STARTS OUT as deadly as regular fuel ENDS UP.
So you now have a runaway reactor with a far deadlier, intractable substance to deal with. It is unfortunate that the Japanese media is not in a position to demand real answers. The international media, and our State Department, should ask the following:
1. If the valves to the reactor are open and the reactor building is flooded, what is stopping the seawater from entering the reactor?
2. Has the meltdown progressed to the point where entering water is vaporized?
3. Steam is known to interact with the zirconium cladding on the fuel rods and accelerate an exothermic fire. Has that happened?
4. One of the byproducts of MOX is Americium, which interacts with zirconium like matches interact to oil. If 5/6 of the reactor core is exposed, has the Americium added to the difficulty and accelerated a fuel fire?
5. If there is no fuel fire, but runaway heat buildup, how much time do they estimate the reactor has before it bursts?
And then, there is the unspoken issue: the spent fuel pool.The most extensive assessment of the damage to be wrought by an exothermic fire in a spent fuel pool was developed by the Nuclear Regulatory Commission in October, 2000, and removed from public view following the September 11, 2001 terrorist attacks. The report is available here:
http://bit.ly/hU2q81

According to Paul Gunter of the non-profit Beyond Nuclear, information is crucial at this time — but it is just not available. The reactors at Fukushima have six separate spent fuel pools, each located above the reactors. If the reactors are overheating, is the spent fuel above them being slowly grilled?

Communications are sparse or absolutely missing in action from TEPCO, said Gunter. “And MITI, the Japanese safety agency, is of no use. We have assumptions all over the board, and I don’t understand why the Japanese government won’t clarify matters.”

The situation, particularly in light of the second explosion at Fukushima Daiichi Unit 3, raises these questions:

1. Why hasn’t the government mentioned the disposition of the stored fuel in these pools?
2. Has the water level dropped to the point where these fuel rods are exposed.
3. Have any of them begun burning?
4. What steps, if any, can they take to prevent an exothermic fire in the spent fuel pools.

An explosion rocked Fukushima Daiichi Unit 3 last night, the second of the six plants at the nuclear complex to have a violent incident. The explosion came as a surprise to the media, the public, and the already traumatized Japanese populace.

Surprises are great for holidays. Cases like this call for candor.