

# Gross Mismanagement of Japan's Stricken Nuclear Plant

By [Washington's Blog](#)

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Region: [Asia](#)

Theme: [Environment](#)

Operator of Japan's Stricken Nuclear Plant Has Been "Going Round and Round in Circles" Using the Wrong Approach

Reactor 1

Tepco says that the fuel rods at Fukushima reactor 1 are exposed. As Bloomberg [notes](#):

Tokyo Electric Power Co. said fuel rods are fully exposed in the No. 1 reactor at its stricken Fukushima Dai-ichi nuclear plant, setting back the utility's plan to resolve the crisis.

The water level is 1 meter (3.3 feet) below the base of the fuel assembly, Junichi Matsumoto, a general manager at the utility known as Tepco, told reporters at a briefing in Tokyo. Melted fuel has dropped to the bottom of the pressure vessel and is still being cooled, Matsumoto said. The company doesn't know how long the rods have been exposed, he said.

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It's unlikely the situation has worsened with the discovery the rods are exposed because they've probably been out of the water since shortly after the crisis started, Narabayashi said.

Indian Express [notes](#):

TEPCO today said new measurements taken this week, after workers in protective suits fixed gauges in the badly-hit reactor one building, indicated that water pumped into the pressure vessel had quickly leaked out.

The Telegraph [points out](#):

One of the reactors at the crippled Fukushima Daiichi power plant did suffer a nuclear meltdown, Japanese officials admitted for the first time today, describing a pool of molten fuel at the bottom of the reactor's containment vessel.

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The company is worried that the molten pool of radioactive fuel may have

burned a hole through the bottom of the containment vessel, causing water to leak.

Bloomberg quotes a top nuclear expert as saying that Tepco has been going about it all wrong:

“I’ve been saying from the beginning the water tomb plan won’t work,” said Tadashi Narabayashi, a professor of nuclear engineering at Hokkaido University. “Tepco must work on a water circulation cooling system as soon as possible. They’ve been going round and round in circles and now realize this is what they need to do.”

Even Tepco is admitting they must change course:

“The plan needs to be revised,” Matsumoto said. “We can’t deny the possibility that a hole in the pressure vessel caused water to leak.”

Reactor 2

As discussed below, nuclear engineer Arnie Gundersen has repeatedly said that nuclear reactions likely occurred long after the tsunami hit.

Now, as MIT’s Technology Review [notes](#):

Tetsuo Matsui at the University of Tokyo, says the limited data from Fukushima indicates that nuclear chain reactions must have reignited at Fukushima up to 12 days after the accident.

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He says the ratios from drains at reactors 1 and 3 at Fukushima are consistent with the nuclear reactions having terminated at the time of the earthquake.

However, the data from the drain near reactor 2 and from the cooling pond at reactor 4, where spent fuel rods are stored, indicate that the reactions must have been burning much later.

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So things in reactor 2 must have been extremely dangerous right up to the end of March.

The containment vessel for reactor 2 was leaking badly after the tsunami. However, [the leak has apparently since been sealed](#).

Reactor 3

Nuclear expert Arnie Gundersen suspects that the huge explosion at reactor number 3 was a nuclear explosion, where the initial hydrogen explosion triggered a “prompt criticality” which spewed radiation high into the air:

[Gundersen Postulates Unit 3 Explosion May Have Been Prompt Criticality in Fuel Pool](#) from [Fairewinds Associates](#) on [Vimeo](#).

As WSWS [notes](#):

Arnie Gundersen of Fairewinds Associates, who has spent 39 years working in the nuclear industry and now acts as an expert witness, has suggested that the explosion in Number 3 building at Fukushima on March 14 may have been more serious than has so far been admitted.

Gundersen argues that an initial hydrogen explosion caused a prompt criticality in the spent-fuel rod pool at the top of the Number 3 reactor building. Prompt criticality is the term used in the nuclear industry for an exponential increase in the number of fission events. That is to say a runaway nuclear chain reaction may have taken place in the spent fuel rods.

Gundersen postulates that the upward vector, the upward thrust, from the explosion in Building 3 may have been sufficient to carry radioactive isotopes from the fuel rods into the atmosphere and to disperse them over many thousands of miles. He points out that uranium has been found on Hawaii, americium has been found in New England and plutonium dust has been found on the Fukushima site. These latter elements are transuranic, i.e. heavier than uranium, and indicate that nuclear fuel was volatilized at Fukushima.

Reactor 4

The building housing reactor 4 is leaning, and Tepco is attempting to shore it up so it doesn't fall over:

As I [noted](#) last month, very high radiation levels were showing up in the containment vessel of reactor 4, even though that reactor was supposedly shut down before the earthquake. Since I posted that article, the Japan's nuclear agency has removed all readings for reactor 4.

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