

INSIDE FUKUSHIMA: How workers tried but failed to avert a nuclear disaster

October 14, 2012

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THE ASAHI SHIMBUN

HAVE WE GOT BATTERIES?

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Had there been 10 ordinary car batteries on hand, the core meltdown might have been prevented. But the Fukushima No. 1 plant had no batteries in store, and that proved fatal for the No. 3 reactor.

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At 4:13 a.m. on March 13, a worker at the plant reported to TEPCO headquarters the difficulty of fixing the HPCI for injecting cooling water into the reactor: "We've tried to restart the HPCI, but perhaps because the battery is depleted, we can't restart it."

The HPCI's pump runs on steam generated inside the reactor, not on electricity. However, it needs electricity to start it, in the same way that a car needs a battery to turn on its engine.

"So you are waiting for power, is that it?" TEPCO headquarters asked.

The worker replied: "If only we had batteries ..." and added uncertainly, in a small voice, "... I suppose we could get the pump to work."

"Are we doing anything to get batteries?" Yoshida asked in a whisper.

Five seconds later, someone else yelled angrily: "It's useless. Useless. There's absolutely no point in scrambling for what we'll never get. Hey, you're just wasting your time."

Yoshida could only note: "We've got no choice but to think up Plan B."

DISCOUNT STORE SOLUTION

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Yoshida's backup plan was to use fire hoses to pump water into the reactor. But because these regular hoses don't have the high pumping pressure of HPCIs, the pressure inside the reactor would first need to be lowered by opening the main steam safety-release valves to let the steam escape.

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But here again, a lack of batteries shot down Plan B.

At 6:39 a.m. on March 13, Yoshida reported to TEPCO headquarters: "We've got a problem with this plan. The thing is, we just found out that the battery for opening the safety-release valves is dead. Unless we get a replacement battery, we can't depressurize the reactor."

"Have you got spare batteries?" headquarters asked.

"No, we haven't," Yoshida replied. "We're trying to get them now."

According to the report by the government's accident investigation panel, the Fukushima No. 1 plant had held no store of batteries to begin with.

In the immediate aftermath of the March 11 quake and tsunami, workers removed five car batteries from site buses and TEPCO-owned cars, and used them to restore the water level meter of the No. 1 reactor.

On the morning of March 12, TEPCO headquarters placed an order with Toshiba Corp. for 1,000 car batteries. However, the vehicles that would deliver them to Fukushima Prefecture could not leave Tokyo for hours. The reasons included delays in obtaining a government permit to use expressways.

Opening the safety-release valves required 120 volts of electricity. Connecting 10 12-volt car batteries in series would have worked, but that number was unavailable at the plant on the morning of March 13.

At 7:05 a.m. on March 13, an announcement was made on the public address system in the plant's emergency response room: "Attention please, everyone! If you have driven to work in your own car, would you come to us with your car key. We would like to borrow your car battery as we don't have enough."

At 7:17 a.m., another announcement was made: "We are going out to buy some batteries, but we are short of cash. If anyone could lend us money, we would really appreciate it."

Twenty car batteries were removed from workers' cars, brought to the central control rooms for the No. 2 and No. 3 reactors, and plugged into the respective safety-release valve control panels.

In the meantime, employees went shopping in the city of Iwaki. They called at practically every discount store in the city, but were able to purchase only eight batteries.

At 9 p.m., the plant's power generation team reported on the situation at the No. 2 reactor.

"We are unable to confirm the reactor's water level. We checked to see why, and discovered that there is no power. The 10 car batteries connected in series are all dead."

At the time, water was being pumped into the No. 2 reactor by the reactor core isolation cooling system, which is an emergency cooling system that runs without electricity. But since there was no way to confirm directly how the system was working, nobody could tell when it might stop, so it was critically important to keep monitoring the water level.

"If we had 50 or 100 batteries, we should be able to monitor the water level. We must ask the procurement staff, as well as TEPCO headquarters, to help us get hold of batteries."

On March 14, the reactor core isolation cooling system failed, and the No. 2 reactor could no longer be cooled. The day before, 10 batteries had been brought to the reactor's central control room. Using their power, an attempt was made in the early evening of March 14 to open one safety-release valve, but it failed. It was the same with another valve. On a third try using different electric wiring, one valve finally opened. It was past 6 p.m., and the reactor core was already heating up like an empty kettle.

Between 8 and 9 p.m., 320 of the 1,000 car batteries ordered by TEPCO headquarters finally arrived at the Fukushima No. 1 plant.

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