

What went wrong: Fukushima flashback a month after crisis started

Thursday 14 April 2011, by [Asahi Shimbun](#) (Date first published: 13 April 2011).

One month after the Great East Japan Earthquake struck, The Asahi Shimbun re-examined the events surrounding the accident at the Fukushima No. 1 nuclear power plant to determine what exactly happened.

At 3:42 p.m. March 11, 56 minutes after the Great East Japan Earthquake struck, all but one of the emergency diesel generators at the Fukushima No. 1 nuclear power plant were knocked out after a tsunami that exceeded 14 meters engulfed the six reactors at the plant.

An official at the emergency response center of the Nuclear and Industrial Safety Agency (NISA), located in the annex building of the Ministry of Economy, Trade and Industry, ran out into the hallway and read out a memo in a loud voice.

“All AC power sources lost at the No. 1 to No. 5 reactors at the Fukushima No. 1 nuclear power plant! Only the B emergency diesel generator at the No. 6 reactor is working!”

All lights and instruments at the central control rooms of the Fukushima No. 1 plant had gone out. Workers connected car batteries to the instruments and used flashlights to read the data that showed what was happening in the reactor cores.

At the headquarters of Tokyo Electric Power Co., the plant operator, in Tokyo’s Uchisaiwaicho district, executives were ashen-faced when they were told, “The reactor cores cannot be cooled without power sources.”

TEPCO President Masataka Shimizu was in the Kansai region on a business trip, and Chairman Tsunehisa Katsumata was also in China on a business trip.

The seven NISA officials who were at the Fukushima No. 1 plant headed for the off-site center located about five kilometers away. The center is where the headquarters is set up locally to deal with any natural disaster that hits the nuclear plant and is designed to allow for constant monitoring of the plant.

However, the power outage and loss of communications channels in the immediate aftermath of the quake and tsunami meant no data was reaching the officials at the center.

At 5:45 p.m., NISA official Koichiro Nakamura said at a news conference, “While water continues to be pumped into (the reactor cores), we do not know what the water level is.”

The reactor cores were, in fact, gradually heading out of control.

When the earthquake struck, Prime Minister Naoto Kan was facing a crisis of a political nature.

At an Upper House Audit and Oversight of Administration Committee session, Kan was asked about political donations his political fund management organization had received from a foreigner.

While he was responding, the chandelier in the committee room began swaying wildly. Committee Chairman Yosuke Tsuruho said, "Please take cover under the desks."

The committee session immediately went into recess.

At about 2:50 p.m., Chief Cabinet Secretary Yukio Edano arrived at the Prime Minister's Official Residence and ran to the crisis management center in the basement. A few minutes later, Kan also returned from the Diet.

Goshi Hosono, Kan's special adviser, told reporters, "All the Cabinet ministers will be called together."

Although the ministers began arriving, a few minutes later Edano instructed all the ministers except himself and Ryu Matsumoto, the state minister in charge of disaster management, to return to their respective ministry offices.

As the ministers left the Prime Minister's Official Residence, Justice Minister Satsuki Eda said, "I don't know who gave the instruction (to return to the ministries)."

There were already signs from the very beginning of confusion in the chain of command.

The No. 1 to No. 3 reactors at the Fukushima No. 1 nuclear power plant that were operating when the earthquake hit all stopped automatically immediately after the quake hit.

About an hour later came the announcement that all AC power sources to the No. 1 to No. 5 reactors had been lost. At about 4:30 p.m., cooling water was no longer being pumped into the No. 1 and No. 2 reactors.

At about that time, TEPCO officials issued a report to those at the Prime Minister's Official Residence that said in part, "There will be no problem for eight hours even if no cooling (of the reactors) occurs."

The eight hours is the amount of time emergency batteries can be used if all AC power sources are lost.

TEPCO officials likely believed that the cooling function could be restored within that time frame.

That evening, Haruki Madarame, chairman of the Nuclear Safety Commission of Japan, visited the Prime Minister's Official Residence and said, "The situation is not one in which radiation is leaking to the outside atmosphere. While there are problems with the power source, the nuclear chain reaction has been completely stopped. The only thing left is to cool the reactors."

At about 5 p.m., Kan addressed the nation and said, "While some of the nuclear power plants automatically stopped operations, there has been no confirmation so far of any effects from radioactive materials to the outside atmosphere."

His comment clearly reflects the opinions of experts within the government.

At a news conference at 7:45 p.m., Edano explained why the government had issued a declaration of a state of emergency at the nuclear power plant.

"If a response can be made within a certain amount of time, concerns and problems will be resolved," Edano said. "At present, the situation is not one in which damage is likely. Because the effects from what might remotely occur are so severe, we have responded by issuing the declaration to ensure that nothing wrong happens."

Meanwhile, Fukushima prefectural government officials said they could no longer wait for a decision by the central government and asked residents living within a 2-kilometer radius of the Fukushima plant to evacuate at 8:50 p.m.

The cooling functions had not been restored even after the eight-hour time frame mentioned by TEPCO officials.

The remote possibility of severe consequences that Edano touched upon was moving toward reality by the minute.

At 1:30 a.m. March 12, Madarame and TEPCO officials visited the Prime Minister's Official Residence and informed Kan and Banri Kaieda, the industry minister, that pressure was rising within the No. 1 reactor at the Fukushima No. 1 plant.

A large volume of steam had accumulated within the reactor's containment vessel.

Madarame said, "In order to secure the soundness of the containment vessel, there is a need to implement a measure to release internal pressure."

If the pressure within the containment vessel continued to increase, there was the danger of damage to the vessel. One way to avoid that was to vent the steam inside the vessel to decrease the pressure.

While there was the strong possibility such a move would release radioactive materials into the outside atmosphere, Kan and other government officials agreed that such a move was unavoidable.

At a news conference from about 3 a.m., Edano touched upon the venting process. He also announced that Kan would inspect the nuclear plant site.

Edano was asked if the venting process would be completed before Kan's visit.

"TEPCO is now conducting final preparations and the measure will be conducted in the near future," Edano said.

No word about the start of venting reached the Prime Minister's Official Residence by 6 a.m. When TEPCO officials were asked about when the venting would start, they said, "The power source for the venting has been cut off" and "Workers cannot approach the site to manually vent the pressure because of the high level of radiation."

At 7 a.m., Kan decided he could not wait any longer and flew to the Fukushima No. 1 plant on a Self-Defense Forces helicopter.

In a van at the site, Kan sat next to TEPCO Executive Vice President Sakae Muto.

In an angry tone, Kan asked Muto, "Why don't you hurry with the venting?"

Failing to receive a clear answer from Muto, Kan's anger remained as he entered the local headquarters to deal with the natural disaster.

Banging a desk with his hand, Kan shouted, "Do you know why I decided to come here?"

Kan calmed down when Masao Yoshida, the head of the Fukushima No. 1 plant, told the prime minister the situation would be handled appropriately.

After that exchange, officials of the Prime Minister's Official Residence began dealing directly with Yoshida and others at the Fukushima plant. That led to a growing gap with TEPCO headquarters in Tokyo.

TEPCO officials began the venting process after 9 a.m., about an hour after Kan left the Fukushima site.

The actual work of opening valves began from after 10 a.m. With pressure within the No. 1 reactor containment vessel falling, the venting process appeared to have worked.

However, at 3:36 p.m., a hydrogen explosion occurred at the No. 1 reactor, blowing away the ceiling of the building housing the reactor.

At a meeting on the evening of March 13 of the Fukushima prefectural government, which was dealing with the natural disaster, Fukushima Governor Yuhei Sato turned his anger on TEPCO officials.

"This is a problem that involves the entire electric power industry," Sato said. "I hope you will lay your life on the line to deal with the situation."

In the end, it was unclear who and when the decision to begin venting was made.

At an April 9 news conference at TEPCO headquarters, Muto avoided giving a clear answer, only saying, "Amid a very serious situation, there was a need to make a number of different actions. A clear answer will require further study."

Opposition party members intend to press the government about when the decision was made as they feel an error was made at the initial stages of dealing with the reactor situation.

On the evening of March 14, officials working at the off-site center near the Fukushima No. 1 plant received word of abnormalities at the No. 2 reactor.

At 6:22 p.m., word was received about the possibility that fuel rods had become exposed above water.

At 8:22 p.m., officials were told of the possibility of a core meltdown.

At 10:22 p.m., word came about the possibility of damage to the core containment vessel.

At about that time, officials at the Prime Minister's Official Residence were told informally by TEPCO officials that they wanted to evacuate their employees from the Fukushima No. 1 plant.

When he heard that, Kan raised his voice and said, "Is TEPCO planning to abandon its role as an electric power company? Call the company president."

At about 3:30 p.m. March 15, Kan gathered a few Cabinet ministers and staff members at the Prime Minister's Official Residence to discuss whether he should go to TEPCO headquarters.

While some participants at the meeting raised legal questions, Edano told Kan, "We shouldn't be concerned about laws now. You should go to the company headquarters."

The decision was made at that meeting to set up an integrated headquarters to deal with the nuclear accident. The body would be established at TEPCO headquarters.

Shortly thereafter, Kan met with Shimizu, the TEPCO president.

"What do you intend to do?" Kan asked.

"We will make every effort to protect Fukushima," Shimizu replied.

"We will set up an integrated headquarters between the government and TEPCO," Kan said. "Do you agree?"

"Fine," Shimizu replied.

Shimizu never openly said anything about pulling out of the Fukushima plant.

However, when Kan went to TEPCO headquarters at about 5:30 a.m. and faced company executives in a meeting room, he raised his voice and said, "Pulling out is not an option. We want you to decide on your resolve. If you do decide to pull out, that will mean the total collapse of TEPCO."

Kan remained at TEPCO headquarters for about three hours. Moving to another room, Kan fell asleep while seated.

Ever since the earthquake, Kan had remained at his office and did not return to his living quarters, working almost around the clock.

From about that time, Kan began taking on more work, telling his aides, "Bring all information to me. I will make the decision" and "I will contact that individual directly."

That led to a situation described by one high-ranking industry ministry official of "not releasing any information before it was first submitted to the Prime Minister's Official Residence."

There was the possibility that such an arrangement affected cooperation among the central government ministries.

Letting Kan sleep for a while at TEPCO headquarters, his staff members finally returned with the prime minister to his official residence at about 8:30 a.m.

In the meantime, strange noises and white smoke emerged from the No. 2 reactor of the Fukushima No. 1 plant. That led to suspicions of damage to the suppression pool.

On the morning of March 14, the upper part of the building housing the No. 3 reactor at the Fukushima No. 1 plant was blown away by a hydrogen explosion.

On the following day, an explosion was heard at the suppression pool of the No. 2 reactor and the building housing the No. 4 reactor was damaged by fire.

White smoke was observed rising from the storage pools containing spent nuclear fuel rods at the No. 3 and No. 4 reactors.

Large volumes of radioactive materials continued to be spewed into the atmosphere.

On March 15, Defense Minister Toshimi Kitazawa held a meeting with high-ranking ministry officials about whether SDF helicopters should be used to dump water on the reactors.

One participant said, "We can estimate how much remains in the storage pool by the way in which steam rises after spraying water."

Another participant said, "However, if the storage pool is close to empty, a steam explosion could occur if water was suddenly sprayed into it."

While different opinions were raised, the general mood was to proceed with the water dumping operation.

There was some hesitation, however, because U.S. officials had said that dumping water from the air would be inefficient.

What finally pushed Kitazawa to give the go-ahead was a comment from Kan.

Kitazawa visited the Prime Minister's Official Residence at about noon on March 16. Kan told him, "I want you to first use SDF helicopters."

Kitazawa decided to go ahead with the water dumping and agreed with Kan that the sooner the better.

At 4 p.m., Ground SDF helicopters dangling large buckets approached the Fukushima plant, but had to abandon the operation because of unexpectedly high radiation levels.

On the morning of March 17, two helicopters dumped a total of 30 tons of water from above the No. 3 reactor on the condition that each helicopter would only be in the area for about 40 minutes.

At about 7 p.m. March 17, a high-pressure water cannon of the Tokyo Metropolitan Police Department's riot police began spraying the reactors from the ground. About 44 tons of water was sprayed toward the No. 3 reactor over about 10 minutes. Five SDF firefighting trucks also took part.

On the evening of March 17, Kan asked Tokyo Governor Shintaro Ishihara to deploy units from the Tokyo Fire Department.

Anticipating such a request, the fire department had conducted a training session the previous day along the banks of the Arakawa river. The exercise was conducted to determine the best way to deploy firefighters to minimize their exposure to radiation.

At 3:20 p.m. March 18, 30 units, including a special rescue unit, with a total of 139 members left Tokyo for Fukushima.

The members were, in principle, all above 40 years in age and had given their approval to take part in the operation.

Water spraying at the No. 3 reactor continued for 13 and a half hours and a total of 2,400 tons of seawater was sprayed.

A news conference was held March 19 by three high-ranking officers of the Tokyo Fire Department after they returned to Tokyo.

With tears in his eyes, Toyohiko Tomioka, the head of the special rescue unit, said, "Everyone did their utmost. I want to apologize to the family members who were left behind. I want to use this opportunity to offer my apology and gratitude to them."

Meanwhile, U.S. government officials became increasingly concerned at the Japanese response to

the Fukushima accident.

Earlier on March 17, at about 10 a.m., Kan received a call from U.S. President Barack Obama.

The first thing Obama said was that the conversation would not be a perfunctory one.

Obama said the United States was prepared to provide every form of assistance, from the dispatch of nuclear energy experts to support from the mid- to long term for the rebuilding process.

That was in sharp contrast to the telephone conversation early on March 12, soon after the earthquake struck. According to Foreign Minister Takeaki Matsumoto, Obama only offered his condolences without going into specific assistance measures.

In the initial stages of the twin disasters, Kan told an acquaintance, "Should we always depend on the United States when something goes wrong? If it is a crisis for Japan, the Japanese should first try to handle the matter. We should depend on the United States only after we have made the effort."

A high-ranking government official admitted that when the Fukushima nuclear accident first broke out, from the very beginning, the government posture was not one of depending on foreign governments. The official added, "That may have been taken as a sign of our refusal (of help)."

When officials of NISA and TEPCO held a meeting with officials of the U.S. Nuclear Regulatory Commission (NRC), U.S. officials were visibly angered at the failure of TEPCO to provide sufficient information.

Those factors led to increasing concerns among U.S. government officials.

On March 17, a high-ranking NRC official met with Kitazawa and told him that water had to be pumped into the storage pool for spent fuel rods at the No. 4 reactor because it was empty of water.

The comment was made based on aerial photos taken by the unmanned reconnaissance aircraft Global Hawk.

The following day, U.S. Ambassador John Roos met with a lawmaker close to Kan at a Tokyo hotel and complained that serious information was not being shared by Japan with the United States.

On the evening of March 19, Kan invited Roos to the Prime Minister's Official Residence and told him, "We will continue to share information with the international community."

On March 20, Kan instructed a lawmaker close to him to create a framework for cooperation between Japan and the United States.

From March 21, full-fledged discussions began to deal with the Fukushima nuclear accident. Among the representatives in the panel were those from the U.S. military, the NRC, the U.S. Embassy, while from the Japanese side were officials of the prime minister's staff, NISA and TEPCO. Officials in the nuclear energy sector from both nations also took part in the talks.

At a news conference on April 1, Kan was asked if he had shifted his emphasis toward one of seeking greater international cooperation.

In a strong tone, Kan said, "We received various proposals from the United States from an early stage and it is my understanding that we took the position of asking for almost all the measures that were considered necessary."

P.S.

* The Asahi Shimbun, 2011/04/13:

<http://www.asahi.com/english/TKY201104120153.html>