

Fukushima Fallout: Updates from Japan

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Stricken reactors

NM819.4537 Cleaning up the Fukushima plant – and in particular the stricken reactors – will take several decades, at least. “If I may put this in terms of mountain climbing, we’ve just passed the first station on a mountain of 10 stations,” said TEPCO’s Akira Ono earlier this month. (1)

TEPCO hopes to begin removal of reactor fuel, and melted fuel fused to other materials, in five years or so. But little is known about the state of the fuel – one of many problems is that camera’s fail due to the intense radiation. (2)

TEPCO has little idea how it might remove the nuclear fuel and associated debris. To put the situation in a positive light, the problem will drive innovation in robotics since current technology is not up to the task. Akira Ono says the aim of decommissioning the plant in 40 years may be impossible without a giant technological leap: “There are so many uncertainties involved. We need to develop many, many technologies.” (3)

TEPCO has no idea what it might do with the nuclear fuel and debris if and when it is removed from the reactor buildings. There is no repository for high level nuclear waste. The Japanese government is considering building a repository under the seabed, about 13 kms off the Fukushima coast. The repository would be connected to the land by a tunnel so it arguably would not contravene international regulations on disposing of nuclear waste into the sea. There is staunch opposition from the fishing industry and many others to the idea of burying nuclear waste at sea in a seismically active area. (4)

Nuclear Regulatory Authority (NRA) Commissioner Toyoshi Fuketa recently questioned whether the plan to remove all fuel and debris will be possible and whether it is the best course of action. “I wonder if the situation would be desired that work is still underway to extract fuel debris 70 or 80 years after,” he said, adding that it may be preferable to remove as much fuel and debris as possible and solidify the rest. (5)

Off-site clean-up

As of the end of September 2015, a total of about nine million cubic meters of contaminated solid and other waste were being stored in about 115,000 locations around Fukushima. Government officials estimate that a total of 22 million cubic meters of contaminated soil will eventually be collected. (6)

The off-site contamination work has been punctuated with revelations of sloppy work. The latest was the revelation in early February that 310 cubic meters of contaminated wood waste was illegally dumped in a riverbed in the Shiga Prefecture city of Takashima. (7)

Last September, as many as 439 bags containing contaminated soil, grass and tree branches were swept away when torrential rains hit Iitate Village, Fukushima Prefecture. (8)

Environment Ministry officials said that nearly 400 bags were recovered but many were empty. (9) The government hopes to secure about 16 sq kms to build interim storage facilities for the contaminated soil in the Fukushima towns of Okuma and Futaba. But less than 1% of the land needed for the facilities has been acquired. The plan is to leave contaminated soil at the interim

facilities for a maximum of 30 years before processing it somewhere outside of Fukushima Prefecture. (6) Another plan being considered is to recycle the material. The government believes that as radioactive decay reduces the hazard posed by contaminated soil, it will eventually be possible to recycle it as construction material for public works projects. In the coming months the Environment Ministry will begin development of the technology and model projects for recycling contaminated soil. (10)

Contaminated soil exceeding 8,000 Bq/kg is called 'designated waste' under the Law on Special Measures Concerning Contamination by Radioactive Materials. For this waste, the original plan was to build one disposal site in each of five prefectures – Tochigi, Miyagi, Ibaraki, Gunma, and Chiba. But the plans have met opposition and are a long way from being realized. (8,11)

In Kami, Miyagi Prefecture, residents forcibly blocked Environment Ministry officials from entering a potential storage site. "What is causing our anxiety is that it remains unclear who will take ultimate responsibility in solving this problem and how," said one local resident. (12)

Evacuees

About 100,000 people are still living as evacuees as a consequence of the Fukushima disaster, comprising about 82,000 who previously lived in designated evacuation zones, and about 18,000 evacuees who acted on their own initiative and fled from the 23 municipalities in Fukushima Prefecture that are outside government-designated evacuation zones. (13)

According to Japan Times, of the 100,000 evacuees (down from 122,000 in January 2015), 56% moved elsewhere in Fukushima Prefecture and the rest moved beyond the Prefecture. The 100,000 evacuees include those staying in temporary housing facilities or taking shelter at relatives' houses and other places; the figure does not include those who have bought houses and settled elsewhere or who have settled in public housing for disaster victims. (14)

The Asahi Shimbun newspaper reported last month on the payment of compensation to victims of the disaster: (13) *"Compensation payments to victims of the nuclear disaster, such as evacuees and affected businesses, come out of a 9 trillion yen [US\$80 billion; €73 billion] treasure chest provided by the government to TEPCO. "With its management priority placed on its own early recovery from the consequences of the accident, however, the electric utility has been trying to terminate the payments as soon as possible and keep the amounts within the framework set by the guidelines. The company's compensation policy has been criticized for failing to make the benefit of residents a primary consideration. "About 10,000 evacuees are involved as plaintiffs in damages suits filed with 21 district courts and branches around the country. This points to the high level of discontent with the compensation payments that have been paid out."*

The government's evacuation order is still in place for nine Fukushima municipalities, and the government is expected to lift evacuation orders for three of those municipalities in the first half of 2016. (15) The government hopes to lift other evacuation orders by March 2017 provided that the annual air dose rate is no greater than 20 mSv/yr¹¹, but concedes that "difficult-to-return zones" will still be subject to evacuation orders beyond then. (16)

Associated with the lifting of evacuation orders comes the reduction and cessation of housing subsidies. Evacuees have to decide whether to return to their former towns or to rebuild their lives elsewhere; some will have little choice but to return because of their financial situation. Voluntary evacuees will be the first to face the cessation of housing subsidies. (17)

The Fukushima-related suicide toll continues to rise, with 19 such suicides in Fukushima Prefecture from Jan–Nov 2015. Police determine if a suicide was related to the Fukushima disaster and subsequent evacuation

after talking to bereaved family members. As of February 2016, a total of 154 suicides have been linked to the disaster in the three prefectures most heavily hit by the nuclear disaster – Fukushima, Miyagi and Iwate. (18)

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