

Plutonium Found Leaking Out Of Japan Nuclear Plant

by Eliza Barclay



Wally Santana/AP

Children watch as their father is screened for radiation at a shelter in Fukushima prefecture, Japan. Plutonium is seeping from a damaged nuclear power plant into the soil outside, officials said Tuesday.

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Highly toxic plutonium has seeped into the soil outside the troubled Fukushima Dai-ichi nuclear power complex in northeastern Japan, officials say. The amounts detected in five different soil samples taken from the facility did not pose a risk to humans, safety officials say.

The plutonium levels found were so low, they could have been from soil almost anywhere on Earth, NPR's Jon Hamilton reports from Tokyo. A government spokesman said Tuesday that an analysis of the specific radioactive isotopes suggests the material came from a nearby reactor.

Officials said the finding of plutonium supports suspicions that radioactive water is leaking from damaged nuclear fuel rods inside the plant, which has been hobbled by crisis after crisis since the March 11 earthquake and tsunami.

The situation remains tenuous at the facility, which continues to leak radiation. Japanese Prime Minister Naoto Kan insisted Tuesday that his country is on "maximum alert" to bring its nuclear crisis under control.

More Evidence Of A Partial Meltdown

One of the units at Dai-ichi uses fuel that includes some plutonium. But all nuclear reactors produce small amounts of the substance.

The presence of plutonium at the plant adds to the evidence that overheated fuel rods began to melt. That has apparently caused a variety of radioactive materials to get into water and steam that has escaped from the reactors.

The agency said it is awaiting the results of another survey by the Science Ministry outside of a 20-kilometer radius around the plant, which could give officials a better idea of whether the plutonium releases threaten human health.

When plutonium decays, it emits what is known as an alpha particle, a relatively big particle that carries a lot of energy. When an alpha particle hits body tissue, it can damage the DNA of a cell and lead to a cancer-causing mutation.

Maximum Alert

The spread of radiation raised concerns about the ability of experts to stabilize the crippled reactor complex. Prime Minister Kan told parliament Tuesday that Japan is grappling with its worst problems since World War II.

"This quake, tsunami and the nuclear accident are the biggest crises for Japan" in decades, Kan said, dressed in one of the blue work jackets that have become ubiquitous among bureaucrats since the tsunami. He said the crises remain unpredictable, but added: "From now on, we will continue to handle it in a state of maximum alert."

The dramatic series of events unfolding at the power plant have featured workers fighting fires, explosions, radiation scares and miscalculations in the frantic bid to prevent a complete meltdown.

Radioactive Water Woes

The latest impediment to getting the reactors and spent fuel pools under control this week has been leaks of highly radioactive substances from the reactors. On Monday, water was found in underground tunnels and trenches that run below and outside of the nuclear reactors, near three buildings that house massive steam turbines at the coastal nuclear complex. Similarly radioactive water has also flooded the basements of the turbine buildings.

On Tuesday, crews continued work to bring electricity back to the facility and managed to turn on the lights in the control room of Unit 4. They also worked to lay cable to restore the electric pumps that keep water circulating inside the reactor cores so that they will not have to manually pump in water.

But the contaminated water that is accumulating outside the reactors in various spots has meant that workers can only work brief shifts to avoid radiation exposure. Workers have had to cut back the amount of water they're pumping into Unit 2, which caused the rods to heat and the core temperature to rise slightly.

Daily readings from the reactors also indicated on Tuesday that temperature and pressure within Unit 1's reactor vessel were rising.

The presence of water with high radiation levels makes many tasks around the plant more dangerous. Radioactivity on the surface of water found just outside the turbine building of the Unit 2 reactor is particularly high, at over 1,000 millisieverts per hour. That's more than four times the amount of radiation the government considers safe for workers, and the water must be pumped out before electricity can be restored to the reactor's cooling system.

"The removal of the contaminated water is the most urgent task now, and hopefully we can adjust the amount of cooling water going in," nuclear safety official Hidehiko Nishiyama said, adding that workers were building sandbag dikes to keep contaminated water from seeping into the soil outside.

TEPCO is also working to drain the basements of Units 2 and 3 and transfer the leaked water into the condensers of the reactors, according to NHK, the Japanese broadcaster. That storage is considered a stopgap measure. But the condensers are already full of water, which will first have to be moved to other tanks in the system.

The Nuclear Industry and Safety Agency says TEPCO is unsure of the source of the new pools of radioactive water near the plant.

U.S. nuclear energy officials who are working to assist Japanese officials said the recovery of the plant will be "slow."

"We're very focused on helping them to restore the cooling," Bill Borchardt, executive director for operations for the Nuclear Regulatory Commission, told members of the Senate Energy and Natural Resources Committee Tuesday. "They need to restore that cooling."

NPR's Jon Hamilton contributed to this report, which contains material from The Associated Press.