

Top Nuclear Experts: Technology Doesn't Yet Exist to Clean Up Fukushima

Containing Fukushima Is Beyond Current Technology

By [Washington's Blog](#)

Global Research, October 04, 2012

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Region: [Asia](#)

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World-renowned physicist Michio Kaku [said](#) recently:

It will take years to invent a new generation of robots able to withstand the radiation.

(The radiation inside the reactors is [too hot](#) even for robots.)

AP [reports](#):

Hiroshi Tasaka, a nuclear engineer and professor at Tama University who advised the prime minister after the disaster ... said the government target of removing all the rods by the end of next year may prove too optimistic because of many unknowns, the need to develop new technology and the risk of aftershocks.

The world leader in decommissioning nuclear reactors, and one of the [main contractors hired to clean up Fukushima](#) – EnergySolutions – [made](#) a similar point in May:

Concerning the extraction of fuel debris [at Fukushima], which is considered the most challenging process, “There is no technology which may be directly applied,” said [[top EnergySolutions executive](#)] Morant.

A top American government nuclear expert – William D. Magwood – told the U.S. Senate Committee on Environment and Public Works:

It is very difficult to overstate how difficult the work is going to be at that site. There will need to be new technologies and new methodologies created to be able to enable them to clean the site up and some of these technologies don't exist yet, so there's a long way to go with that There's a long, long way to go.

(Magwood is a Commissioner for the Nuclear Regulatory Commission, former 7-year Director of Nuclear Energy with the U.S. Department of Energy , where he was the senior nuclear technology official in the U.S. government and the senior nuclear technology policy adviser to the Secretary of Energy, and the longest-serving head of the United States' civilian nuclear technology program, serving two Presidents and five Secretaries of Energy from 1998 until 2005.)And Greenpeace [notes](#) that even storing the waste removed from Fukushima is a challenge:

A group of scientists from the Science Council of Japan (SCJ) are advising the government via the Japan Atomic Energy Company (JAEC) to completely overhaul its nuclear waste disposal plan. Currently, the government plans to bury spent nuclear fuel 300 meters below ground, where it will need to stay for tens of thousands of years until it is no longer radioactive.

[The SCJ group said](#) that because Japan is so prone to earthquakes and volcanic activity, there's no guarantee of safety for future generations.

[Instead, the researchers recommend](#) storing the waste in "temporary safe storage" facilities, either above ground or underground, for up to a few hundred years—and in the meantime, actively working to develop new technology to ensure safe burial of the highly radioactive material. That technology does not exist at this point. "Based on current scientific knowledge, we cannot determine a geological formation that would be stable for hundreds of thousands of years ... But discussions on where the spent fuel should ultimately be stored have not even begun.

Postscript: We don't mean to imply that the situation is hopeless. Indeed, we are big believers in the ability of humans to come up with ingenious solutions ... when we put our minds to it.

For example, Sandia National Laboratories has engineered a special ["molecular sieve"](#) which can more efficiently remove radiation from wastewater.

And one of the world's leading authorities on fungi and bioremediation says that [certain types of mushrooms can naturally reduce radiation](#).

Engineers are also furiously working on developing robots which can withstand higher levels of radiation.

But before we can tame this monster, we have to admit that Fukushima is one of the [top short-term threats to humanity](#) and deploy the resources necessary to develop the required technologies.

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