

US nuclear waste could provide terror target

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A large cloud of lethal radioactive fallout could be released by a terrorist attack on the nuclear waste stored at up to 103 reactors in the US, according to an expert report for the US National Academy of Sciences (NAS).

The cooling ponds in which spent radioactive fuel is kept could be severely damaged by crashing aircraft, high-powered weapons or explosives, the report says. With the water draining away, the fuel cladding, made of a zirconium alloy, would overheat and burst into flames.

This "could release large quantities of radioactive material into the environment", the report concludes. It was compiled by a committee of 15 leading scientists from universities, research institutes and consultancies in response to a request from the US Congress.

"Our findings were unanimous," says committee chair, Louis Lanzerotti, from the New Jersey Institute of Technology. "The committee identified several terrorist attack scenarios that could have potentially severe consequences."

The NAS was asked to investigate the issue after a report by nuclear critics in 2003 suggested that an attack on a cooling pond could release more radioactivity than the Chernobyl reactor accident in Ukraine in 1986. Such a release would cause thousands of deaths from cancer, the critics claimed.

Although their worrying claims were rejected by the US Nuclear Regulatory Commission (NRC) and the nuclear industry at the time, they have now been backed by the NAS report. "The committee judges that some of their release estimates should not be dismissed," it says.

Under water over ground

Members of the NAS committee, however, cannot say precisely how many of the 12-metre-deep cooling ponds are at risk. Those at the 34 boiling water reactors in the US might be more vulnerable because they are located above the ground under thin steel covers. The ponds at 69 pressurised water reactors are at ground level.

The dangers at each individual plant should now be analysed, the NAS report says, and it might be "prudent" to move some waste into dry stores. It also recommends urgent action, including reducing the risks by installing heavy-duty water sprinklers to provide back-up cooling.

The NAS published a declassified version of its report on 6 April after an argument with the NRC over what could be made public without helping terrorists. The NRC is criticised in the report for undermining public confidence by

withholding information on the vulnerability of spent fuel ponds.

"Unreasonable" scenarios

In a letter to Congress on 14 March, the NRC said that some of the scenarios in the NAS report were "unreasonable", and some of its recommendations "lacked a sound technical basis". Nevertheless, in a statement on 6 April, it described the report as "important" and said it was giving its recommendations "serious consideration".

Since the terrorist attacks on 11 September 2001, the NRC pointed out it had issued "no fewer than nine sets of mandatory instructions or guidance to nuclear plant operators to improve security of nuclear power plants, including spent fuel in storage".

But the NRC was accused of being "obstructive" by Frank von Hippel, from Princeton University in New Jersey, and one of the authors of the 2003 report which first raised the alarm. "The commission needs to be restored as a regulatory agency not cowed by the nuclear industry," he told New Scientist.

"Whatever the chances of an attack on the spent fuel pools, the NAS study shows that we've not taken all reasonable precautions to mitigate its consequences," adds David Lochbaum, a nuclear safety engineer from the Union of Concerned Scientists in Washington DC. "Those steps must be taken."

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