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EDITOR'S NOTE

The first article in this issue, "Reducing the hazards from stored spent power-reactor fuel in the United States," addresses what unfortunately must now become a staple of science and security studies—ways to diminish the risks and consequences of terrorist attacks on civilian infrastructure.

The result of a collaboration of several authors, this article examines the potential consequences of an event that would drain water from the spent fuel pool of a U.S. commercial reactor—an event that could conceivably be caused by accident, or perhaps more likely, by deliberate action. In such an event, the danger is that the spent fuel could catch fire and lead to a release of the fuel's volatile fission products, including the 30-year half-life Cs-137. The probability of such a sequence is greatly increased by the current procedures at most reactor sites of "dense-packing" the spent fuel in the pools. The authors propose as their principal recommendation that, after a transition period, all spent fuel be transferred from wet to dry storage within five years of discharge. Such an action would reduce the inventory of Cs-137 in the pools by a factor of four, and would also make possible the return to open-rack storage of the remaining spent fuel, a configuration that could allow natural convection air cooling of the spent fuel if airflow has not been blocked by a building collapse or other cause, even in the event of the loss of water.

The article is followed by a brief exchange between Allan Benjamin, the lead author of a 1979 Sandia National Laboratory report on a spent fuel pool accident, and the authors of the current article.

The second article, by David Wright and Lisbeth Gronlund, seeks to estimate how much weapon-grade plutonium China had produced over its entire nuclear history before it ceased production around 1990. At present, all the NPT-declared nuclear weapon states, the U.S., Russia, France, the U.K., and China, have ceased production of fissile material for weapons, giving rise to the hope that they along with other countries with nuclear weapons could agree to a formal multilateral cutoff convention to ban future production of fissile material for weapons. Whether China could support such a cutoff will depend both upon its future weapons plans, and on how much fissile material it already has in hand. With respect to plutonium, the authors estimate that it is 2 to 5 metric tons, a quantity which would allow some, though not limitless, expansion of China's nuclear weapons arsenal.