Union of Concerned Scientists
Citizens and Scientists for Environmental Solutions

Perspectives on Interim Storage of Spent Nuclear Fuel presented to the Blue Ribbon Commission on America's Nuclear Future Transportation and Storage Subcommittee

From the time it is removed from reactor vessels until the time it is shipped offsite, interim storage of spent fuel at nuclear plant sites represents a risk to public and worker safety.

The risk from onsite storage is highest during wet pool storage. The risk drops significantly when the spent fuel is transferred to dry cask storage onsite.

Current onsite storage plans place spent fuel in wet pools until the pools are essentially filled and then intermittently transfer spent fuel to dry casks when needed to free up space for the next discharge from the reactor. These plans maintain the wet pool risk about as high as can be achieved and supplement it with the added risk from dry casks stored onsite in plain view.

Responsible onsite storage accelerates the transfer of spent fuel to dry casks to maintain the inventory within the wet pools near minimal amounts; ideally, only that spent fuel discharged from the reactor within the past five years. The spent fuel is dispersed as widely apart as possible within the thinned-out wet pools. The wet pool storage risk is thus reduced towards its minimum value. This plan puts more spent fuel in dry cask storage than current plans, translating into higher risk. But the risk reduction achieved from enhanced wet pool storage more than offsets the risk increase from the additional dry casks. In addition, the onsite dry cask storage area is surrounded by earthen mounds or gravel barriers to lessen the likelihood of successful acts of malice against multiple dry casks.

Better management of the wet pool risk is particularly crucial at boiling water reactors with pools located inside secondary containment. A reactor accident at such plants can initiate a wet pool accident and vice-versa.

The risks, in decreasing order of severity, at a site with at least one operating reactor are: (1) the reactor risk, (2) the wet pool risk, and (3) the dry cask risk. Consequently, relocating dry casks from an operating reactor site reduces its risk profile, but not to any significant degree.

The risks, in decreasing order of severity, at a site without an operating reactor are: (1) the wet pool risk (which can disappear when spent fuel is entirely transferred to dry casks), and (2) the dry cask risk. Consequently, relocating dry casks from such sites can eliminate or at least significantly reduce their risk profiles.

David Lochbaum
Director, Nuclear Safety Project

August 19, 2010

www.ucsusa.org
Two Brattle Square · Cambridge, MA 02238-9105 · TEL: 617.547.5552 · FAX: 617.864.9405
1825 K Street NW · Suite 800 · Washington, DC 20006-1232 · TEL: 202.223.6133 · FAX: 202.223.6162
2397 Shattuck Avenue · Suite 203 · Berkeley, CA 94704-1567 · TEL: 510.843.1872 · FAX: 510.843.3785
One North LaSalle Street · Suite 1904 · Chicago, IL 60602-4064 · TEL: 312.578.1750 · FAX: 312.578.1751