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Dry Cask Storage

In the late 1970s and early 1980s, the need for alternative storage began to grow when pools at many nuclear reactors began to fill up with stored spent fuel. Utilities began looking at options such as dry cask storage for increasing spent fuel storage capacity.

Dry cask storage allows spent fuel that has already been cooled in the spent fuel pool for at least one year to be surrounded by inert gas inside a container called a cask. The casks are typically steel cylinders that are either welded or bolted closed. The steel cylinder provides a leak-tight confinement of the spent fuel. Each cylinder is surrounded by additional steel, concrete, or other material to provide radiation shielding to workers and members of the public. Some of the cask designs can be used for both storage and transportation.

There are various dry storage cask system designs. With some designs, the steel cylinders containing the fuel are placed vertically in a concrete vault; other designs orient the cylinders horizontally. The concrete vaults provide the radiation shielding. Other cask designs orient the steel cylinder vertically on a concrete pad at a dry cask storage site and use both metal and concrete outer cylinders for radiation shielding. See the picture of a typical dry cask storage system.

The first dry storage installation was licensed by the NRC in 1986 at the Surry Nuclear Power Plant in Virginia.

Spent fuel is currently stored in dry cask systems at a growing number of power plant sites, and at an interim facility located at the Idaho National Environmental and Engineering Laboratory near Idaho Falls, Idaho. See the map showing the location of existing independent spent fuel storage installations.

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