An Overview of Used Nuclear Fuel Storage

What's most important to know?

Spent fuel is stored safely and securely on site at each of Progress Energy's five nuclear reactors in three states, including the Crystal River facility in Citrus County, Fla. A new nuclear plant in Florida, if one is built, would be constructed with the ability to store spent nuclear fuel on site. Progress Energy has a track record of storing spent fuel safely and securely for more than 35 years.

What is spent nuclear fuel and how is it stored?

Spent nuclear fuel is solid and in the form of pellets roughly the size of a pencil eraser. The pellets are encased in metal tubes, and the tubes are arranged into assemblies (sometimes called bundles) that are inserted into a nuclear reactor to create heat. The heat is used to produce steam that drives a turbine that generates electricity. *(See diagram.)* At the end of their usefulness in generating electricity (usually after 36 to 48 months in a reactor), the fuel rods are removed. Because they remain radioactive, even though they can no longer efficiently generate electricity, they are stored safely on site at the nuclear plant.

For more than 40 years, spent fuel has been stored safely and securely at U.S. commercial nuclear reactors. Today, used fuel is stored at 103 plant sites, either in steel-lined vaults filled with water or steel-and-concrete containers. A potential new nuclear power plant in Levy County, if constructed, would include water-filled vaults to store spent fuel. The plant's fuel-storage facilities would be among the most secure and safe industrial facilities in the world – designed to withstand earthquakes, tornadoes and hurricanes.

How much space does spent fuel storage require?

In nearly 30 years of operation, the Crystal River Nuclear Plant in Citrus County has stored spent nuclear fuel safely and securely in a 25-foot-by-77-foot concrete-and-steel water-filled vault. All of the spent fuel generated at this site would fit into an average-sized single family home, less than 2,000 square feet.

Is on-site storage of spent fuel safe?

Yes. On-site storage of spent nuclear fuel is very safe. It has been managed safely and securely in the U.S. for more than 40 years. Spent fuel has been stored at the Crystal River site since the mid-1970s.

The Nuclear Regulatory Commission (NRC) ensures that U.S. nuclear power plants protect public health and safety and the environment. The NRC licenses the use of nuclear material and inspects operators to make sure they manage and store spent fuel safely and securely.

What about plans for a national spent fuel repository?

Progress Energy supports the federal government's commitment to open and operate a permanent repository for spent fuel. The Department of Energy's preferred site for a permanent facility is deep within Yucca Mountain, Nev., and scientific and technical work continues on that site. Until a permanent repository is opened, Progress Energy will continue to manage spent fuel safely on site at each of the company's nuclear plants as it has for more than 35 years.

For more information, go to www.progress-energy.com/poweringthefuture.

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