

Facts

from the **Savannah River Site**

ENVIRONMENTAL STEWARDSHIP • NATIONAL SECURITY • SCIENCE AND ENERGY

H Canyon

H Canyon is the only operating, production-scale, radiologically-shielded chemical separations facility in the United States. H Canyon began operations in the early 1950s. The facility's operations historically recovered uranium and neptunium from fuel tubes used in nuclear reactors at the Savannah River Site, to produce radioactive materials used in making nuclear weapons. After the end of the Cold War, the facility's mission changed to one of nonproliferation and environmental cleanup.

The interior of the facility resembles a canyon, giving the facility its name. Most canyon operations are done from a control room using remote control cranes. One side of the canyon is considered "hot" because it has higher radiation levels, while the other side of the canyon is "warm" because it has lower radiation levels. No one has been inside the "hot" side of the canyon since it began operations.

Employees who work in the building are protected from radiation by the thick, steel-reinforced concrete walls. Irradiated spent fuel rods are transported to H Canyon in shielded cask cars from L Area storage. The spent fuel rods are dissolved in nitric acid. Uranium liquid, also known as Target Residue Material, is also received from the Chalk River Facilities in Canada. The uranium from these sources is recovered through a complex chemical process, including solvent extraction cycle operations. The cycles remove impurities that are present in the feed. The impurities are then transferred to our waste management facilities.

The uranium is mixed with natural uranium in a process called "blend down" and is loaded in shipping containers for shipment off-site. Blending down uranium not only makes it undesirable for use in nuclear weapons, but also makes it able to be converted to fuel rods and used in commercial nuclear reactors operated by the Tennessee Valley Authority to make electricity.

H Canyon is also being used as a "test bed" for new technologies, allowing outside parties to test in a real life operating facility.

Although it is over 55 years old, H Canyon has maintained and proven the flexibility originally intended for it, by adapting to the needs of its customers. H Canyon is a one-of-a-kind national asset that is serving the state, the nation and the world by processing weapon-grade nuclear materials for final disposition out of South Carolina.



H Canyon was constructed in the early 1950s and began operations in 1955. The interior of the building resembles a canyon because the processing areas resemble a gorge in a deep valley between steeply vertical cliffs. It is 1,028 feet long, 122 feet wide and 71 feet tall, with several levels to accommodate the various stages of material stabilization, including control rooms to monitor overall equipment and operating processes, equipment and piping gallery for solution transport, storage, and disposition. To minimize worker radiation exposure, work in the canyon, including maintenance, is remotely performed by overhead bridge cranes.



A shipment of low enriched uranium on its way to TVA

The Savannah River Site is owned by the U.S. Department of Energy. Savannah River Nuclear Solutions is the management and operations contractor at the Savannah River Site.

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