

Radioisotope Processing Facility



Oak Ridge National Laboratory has a legacy in isotope production and innovation. The lab produces, purifies and ships more isotopes than any other place in the world—more than 250 isotopes for medicine, industry, research and national security.

At ORNL, DOE plans to build a Radioisotope Processing Facility (RPF), which will transform U.S. capability to meet the growing demand for radioisotopes. The demand for medical isotopes alone has doubled over the past five years, yet the U.S. isotope production infrastructure is already at capacity.

The RPF will provide U.S. isotope independence by eliminating reliance on foreign supply for mission-critical radioisotopes. It will also enable the retirement of aging nuclear facilities, such as some Cold War-era buildings at ORNL, improving efficiency and reliability and providing a stable radioisotope supply chain for industrial and medical applications.



A Hazard Category 2 nuclear facility, the RPF will deploy modular hot cells that can be configured to meet isotope processing needs of today and the future. A flexible design provides room for program growth and research & development space to enable the identification of the next breakthrough radioisotope. The RPF will be located near ORNL's High Flux Isotope Reactor and will benefit from ORNL's unique technology and extensive expertise.



Mission-need isotopes planned to be processed at RPF

Iridium-192	Actinium-227	Barium-133	Nickel-63
Thorium-229	Promethium-147	Iron-55	Ruthenium-106
Strontium-90 (purified)	Carbon-14	Krypton-85	Selenium-75

Details



Can support up to 32 modular hot cells in 8 separate processing bays with dedicated laboratory spaces



Can support up to 48 gloveboxes and 16 fume hoods



Current Good Manufacturing Practice (cGMP) capable



On-site manipulator staging



Crane for moving transportation casks



Dedicated bay for full-length HFIR target rod transloading and processing



Hazard Category 2 nuclear facility



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