

# Radiochemical Engineering Development Center

## Research Facility



At the Radiochemical Engineering Development Center (REDC), experts in radiochemical processing harness specialized equipment and systems to produce unique radioisotopes for applications in industry, national security, medicine, space exploration, and research.

The REDC's two buildings, built in 1966 and in 1968, are designated Hazard Category 2 nuclear facilities and include hot and cold laboratories, heavily shielded hot cells, gloveboxes, and high bay space. There, experts safely handle alpha and neutron emitters and work with some of the most exotic and rare materials on the planet.

REDC unleashes world-class capabilities in isotope production, research and development, source fabrication, and the distribution of various unique isotopes. REDC is a key resource for the DOE Office of Isotope R&D and Production and other US Department of Energy and National Nuclear Security Administration programs advancing materials science, nuclear science and technology, energy innovation, chemistry, nuclear security, and neutron science.

REDC pioneered many radiochemical separation processes and continues to drive innovation for the production, recovery, and purification of radioisotopes for shipment worldwide. Critical mission areas include producing plutonium-238 for NASA's radioisotope power systems; isotopes for targeted alpha therapy cancer treatments; transcurium elements (californium, berkelium, einsteinium, fermium) for industrial and research applications; and isotopes such as californium-252, iridium-192, selenium-75, and nickel-63 for industry, national security, and nuclear nonproliferation. Uses include detecting explosive residues at airport security checkpoints; radiology; monitoring coal, cement, and other materials; and analyzing fissile and transuranic material waste.

### DETAILS



16 hot cells with associated tanks and process equipment



High-density concrete used for front, rear, sides, and top shielding of hot cells



All primary and secondary confinement systems exhaust streams; offgas systems enable safe and compliant radiochemical processing



Fiberoptic access for online spectroscopic monitoring of chemical processes; capable of expanding in-cell and near-cell instrumentation



Pneumatic transfer system between facilities  
Pneumatic motor-driven intercell conveyer systems  
Pneumatic transfer tube system



In-cell remote manipulators and gloveboxes; 50-ton bridge crane in high bay for remote transfer of materials

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