

## Production and Research Facility

# U.S. Stable Isotope Production and Research Center



Oak Ridge National Laboratory (ORNL) is building the U.S. Stable Isotope Production and Research Center (SIPRC) to expand the nation's capability to enrich stable isotopes for medical, industrial, research, and national security uses. The demand for these isotopes has increased significantly over the past decade, and SIPRC will reduce our nation's dependency on foreign suppliers for critical isotopes.

East Tennessee has a rich history of producing enriched stable isotopes. From 1945-1998, more than 230 stable isotopes were generated at the now-decommissioned calutron facility at the Y-12 National Security Complex. But those stockpiles are being depleted, and the U.S. has no existing domestic broad-scope enrichment capability, so the Department of Energy (DOE) is investing in the construction of SIPRC.

The single-story, 54,000-square-foot building, designed to allow for future expansion, will be on ORNL's main campus. It will house two types of isotope separation equipment: Electromagnetic Isotope Separators (EMIS), and Gas Centrifuge Isotope Separators (GCIS).

Over the last decade, ORNL has performed extensive design, research, development, prototyping, and production demonstration activities to advance the EMIS and GCIS technologies that will be installed in the this new facility. SIPRC will provide DOE with multiple isotope production systems that will be capable of enriching a wide range of stable isotopes. It includes space to add more systems and expand the building footprint in the future as demand increases.

### Gas Centrifuge Isotope Separation (GCIS)

GCIS typically has low capital, operating, and facility costs. Some isotopes can be fully enriched through this process. GCIS can also provide pre-enriched feedstock material for EMIS, multiplying EMIS performance to help achieve production goals and reducing the number of EMIS machines needed. This depicts a general GCIS, not necessarily the exact type used in SIPRC.



### Specifications



10 EMIS machines capable of enriching a variety of stable isotopes



GCIS production cascade to enrich molybdenum-98/100



Test cascade infrastructure for future R&D on silicon-28



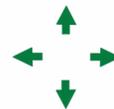
Multiple full-scale production lines



High-bay space with overhead crane



Lab support spaces including a Class 1000 clean room



Space for additional EMIS units and GCIS cascades



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