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. However, those stockpiles are being depleted, and the U.S. has no existing domestic broad-scope enrichment capability, so the Department of Energy (DOE) is making a significant investment in the construction of SIPRC.

The single-story, 64,000-square-foot building, which will be on ORNL's main campus, is designed to allow for future expansion both within and adjacent to the planned footprint. It will house two types of isotope separation equipment.

For more than a decade, ORNL has performed extensive design, research, development, prototyping, and production demonstration activities to advance the technologies that will be installed in this new facility. SIPRC will provide DOE with multiple isotope production systems that will be capable of simultaneously enriching multiple stable isotopes spanning the periodic table.

Stewarding natural resources

A several-month survey looked at lessening the impact the new facility would have on wildlife, including bats and other mammals, birds, invertebrates, fish and trees and other plants. An entrance road was relocated to protect a wetland used by multiple salamander species. Native grasses will be planted as a buffer between the facility and woods. An existing community of chinkaapin/Shumard oaks will be expanded to compensate for cleared trees.

Specifications

- Machines capable of enriching a variety of stable isotopes
- Enrichment capabilities for molybdenium-98/100
- 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 future expansion of equipment/infrastructure

Paul Larson

Senior Project Manager - Stable Isotopes

larsonep@ornl.gov
865.576.8339