

## Plan Overview

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*A Data Management Plan created using DMPTool*

**Title:** Characterization and Shaping of the IPF Secondary-Neutron Spectrum

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### **Project abstract:**

A significant, useful flux of secondary neutrons is currently underutilized at the Los Alamos Isotope Production Facility (IPF). Work is proposed here to develop this secondary-neutron flux into a production-quality beam by thoroughly characterizing both its spectral and spatial distributions through a combination of particle-transport modeling and experiments at IPF and the Weapons Neutron Research (WNR) facility. Further, this work will seek to shape the secondary neutron flux by investigating the effect of physical geometry and insertion of “control materials” on the neutron population behind various production target stacks. The investigations proposed by this work will be crucial to the understanding of the spatial and spectral control of high-energy secondary-neutron fluxes for accelerator-based isotope production applications. The results of this study will determine whether the use of control materials will facilitate improved utilization of the existing neutron flux, resulting in higher product yields as well as allowing for the tuning of the energy spectrum to reduce unwanted byproducts in the targets.

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## Characterization and Shaping of the IPF Secondary-Neutron Spectrum

Data will be generated using various experimental techniques as well as theoretical calculations and simulations. The results of these investigations will be published in peer-reviewed scientific and technical journals. It will be made available to other researchers on request and to students and postdocs for further analysis and validation. Data will not include any trade secrets.

To the extent possible, all data used in the figures and analysis will be included in the publications. Additional data will be made available upon request on an individual basis.

The raw and processed data will be archived on local and institutional storage facilities.

The data generated will not contain PIO or compromise U.S. national, homeland, and economic security. It will recognize proprietary interests, business confidential information, and intellectual property rights; avoid significant negative impact on innovation, and U.S. competitiveness; and otherwise be consistent with all applicable laws, regulations, and DOE orders and policies. We will go through the internal LANL review process for all data released.

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