

**SELECTIVE GAS EXTRACTION: A TRANSFORMATIONAL PRODUCTION
TECHNOLOGY BEING IMPLEMENTED BY GENERAL ATOMICS, THE
UNIVERSITY OF MISSOURI RESEARCH REACTOR CENTER AND NORDION**

Joanne Grozelle¹

¹Nordion, Ottawa, ON, Canada

Joanne.grozelle@nordion.com

Abstract

This collaborative project by GA, MURR, and Nordion utilizes a transformational radioisotope production system to produce the medical isotope Molybdenum-99 (Mo-99) by utilizing existing nuclear infrastructure located in the United States and Canada. The project uses innovative, reusable low enriched uranium (LEU) irradiation targets and integrated gaseous extraction system to generate and selectively remove Mo-99 suitable for use in all existing Tc-99m generators.

The Selective Gas Extraction (SGE) targets will be installed in the MURR reactor reflector region where they receive neutrons from the reactor to produce Mo-99. The targets are designed to allow selective reaction of Mo-99 with a suitable extraction gas during the irradiation process. Mo-99 is mobilized as a gas, which is transferred outside the reactor for collection at MURR and purification at Nordion's existing cGMP facility in Ottawa. SGE technology maximizes isotope production while minimizing the amount of LEU needed.

Keywords: Mo-99, LEU, Selective Gas Extraction, Nordion, MURR, General Atomics