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**The High Flux Isotope Reactor:
Technical Challenges to Overcome in Conversion Analysis**

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ABSTRACT

Oak Ridge National Laboratory (ORNL) High Flux Isotope Reactor (HFIR) is a multi-faceted reactor that delivers world-class performance in a variety of fields such as material irradiation, isotope production and neutron scattering. The reactor, in operation since 1965, currently uses HEU enriched at 93 wt. %. HFIR is one of the five U.S. High Performance Reactor (USHPRR) expected to convert to the new UMo “monolithic” fuel, currently under development. ORNL is collaborating with the US reactor conversion program since 2005 to convert HFIR to LEU. ORNL is coordinating with the U.S. reactor conversion program in fuel testing, fabrication, and qualification to ensure that a converted HFIR is safe, reliable, and meets regulatory requirements. HFIR unique design features and performance and safety requirements make the conversion analysis particularly technically challenging. Argonne National Laboratory (ANL) is actively collaborating with ORNL to help identify and solve some of these unique technical challenges. This paper will present some of the key challenges met so far and the strategy and solutions identified to overcome them.