

C.W. ALLEN & R. A. BUTLER
University of Missouri Research Reactor
1513 Research Park Drive
Columbia, Missouri 65211

C. JAROUSSE ⁽¹⁾ & JL. FALGOUX ⁽²⁾
AREVA-CERCA♦

⁽¹⁾- Les Berauds, B.P. 1114, 26104 Romans Cedex – France

⁽²⁾- Rue Juliette Recamier, 69006 Lyon Cedex - France

ABSTRACT

The University of Missouri Research Reactor and AREVA-CERCA♦ have recently signed a Memorandum of Understanding to cooperate in a program to determine the feasibility of manufacturing a prototype LEU-foil target in a plate geometry for the production of molybdenum-99. The concept of a plate type target consists of transitioning Argonne National Laboratory's existing LEU-foil annular target design from a concentric tube geometry to a plate geometry. The objectives of the feasibility determination are:

- 1) Evaluate the structural integrity and geometric stability of a foil plate target during irradiation and post-irradiation by finite element analysis modeling.
- 2) Evaluate the heat transfer characteristics of a foil plate target with respect to thermal contact resistance at the foil / plate interfaces.
- 3) Determine the economics of manufacturing an LEU-foil plate target in comparison to that of a LEU dispersion plate type target on a commercial scale basis.
- 4) Determine the most effective and efficient method of disassembling the target to remove the foil component of the target for chemical processing.

The results of the structural and thermal analyses will be used to determine if a comprehensive set of Safety Case documentation can be developed to support the irradiation and disassembly of a "mini" (i.e., small scale) LEU-foil plate target as a trial demonstration.