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**U-10Mo Conversion Burnup Benchmarking Activities for Full-Size  
LEU Fuel Plates**

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**ABSTRACT**

Validation benchmark experiments for low-enriched uranium (LEU) U-Mo fuel systems are currently being developed from existing experiments irradiated in the Advanced Test Reactor (ATR) and ATR Critical Facility (ATRC). The experiments chosen include the ATR Full size plate In center Flux trap Position (AFIP-7) experiment and the Ki-Jang Research Reactor Lead Test Assembly (KJRR-LTA) located in the Northeast Flux Trap. Each experiment was modeled using a high-fidelity three-dimensional Monte Carlo code with depletion capabilities. A description of the validation experiments will be provided as well as comparison to post irradiation examination results for the AFIP-7 experiment. The PIE results for the AFIP-7 experiment have demonstrated good agreement with analytical models. Due to the complex nature in of the ATR, modeling simplifications to support benchmark activities using lower fidelity reactor physics software. A discussion of the analytical bias associated with modeling simplifications will also be provided.