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Irradiation of U-Mo/Mg Dispersion Fuel in the NRU Reactor

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ABSTRACT

Irradiation tests on U-7Mo/Mg and U-10Mo/Mg dispersion fuel mini-elements with an LEU loading of 4.5 g/cm^3 are currently being conducted in the NRU reactor with a maximum linear power rating of 100 kW/m. The U-Mo/Mg fuel elements used in the irradiation were manufactured in the Nuclear Fuel Fabrication Facility at Canadian Nuclear Laboratories (Chalk River) through processes similar to those used to fabricate NRU driver fuel (LEU) and Mo-99 targets (HEU). This paper describes the U-Mo/Mg mini-elements, the irradiation vehicle used, the methodology of the proposed irradiation tests, and some preliminary PIE on the U-7Mo/Mg mini-elements that were irradiated to a burnup of 10 at% U-235 depletion.