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**Design Demonstration Elements (DDE) and Full-Size multi-Plate test  
of HFIR (FSP-HFIR) Scoping Study**

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**ABSTRACT**

A scoping study has been performed to determine the best viable option for irradiating three DDE experiments and one FSP experiment. The four experiments are called DDE-MITR, DDE-MURR, DDE-NBSR and FSP-HFIR. A scoping study document was written specifying fuel geometry dimensions, and power and burn-up targets for each element to be evaluated. Two test reactors being considered for irradiating the elements are the Advanced Test Reactor (ATR) and Belgium Reactor 2 (BR2). Analysts at both facilities have been evaluating the different experiments to show whether their reactor can achieve the power and burn-up targets. Factors for deciding the best reactor to perform the irradiation are technical feasibility, cost, and schedule. The result of this study may be a combination of each reactor being used or selecting just one of the reactors to irradiate the four experiments.