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# Benchmark Evaluation of Dounreay Prototype Fast Reactor Minor Actinide Depletion Measurements

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Historic measurements of actinide samples in the Dounreay Prototype Fast Reactor (PFR) are of interest for modern nuclear data and simulation validation. Samples of uranium, neptunium, plutonium, americium, curium, and californium isotopes were irradiated for 492 effective full-power days and radiochemically assayed at Oak Ridge National Laboratory (ORNL) and Japan Atomic Energy Agency (JAERI). Limited data were available regarding the PFR irradiation; a six-group neutron spectra was available with some power history data to support a burnup depletion analysis validation study.

Under the guidance of the Organisation for Economic Co-Operation and Development Nuclear Energy Agency (OECD NEA), the International Reactor Physics Experiment Evaluation Project (IRPhEP) and Spent Fuel Isotopic Composition (SFCOMPO) Project are collaborating to recover all measurement data pertaining to these measurements, including collaboration with the United Kingdom to obtain pertinent reactor physics design and operational history data.

These activities will produce internationally peer-reviewed benchmark data to support validation of minor actinide cross section data and modern neutronic simulation of fast reactors with accompanying fuel cycle activities such as transportation, recycling, storage, and criticality safety.

## Country/Int. Organization

USA/INL, USA/ORNL, France/OECD-NEA, Japan/JAEA

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