

HRIBF Highlight FY 2006: HPTL Completed and Commissioned

The High Power Target Laboratory (HPTL) Project was completed and commissioned early in FY2006. HPTL provides critically-needed new capabilities to the Holifield Radioactive Ion Beam Facility (HRIBF) and helps to advance the state of the art of Isotope Separator On-Line (ISOL) radioactive ion beam (RIB) production, including development of targets, ion sources, and beam production and purification techniques. In addition to important benefits as a stand-alone project, HPTL forms step one of a comprehensive HRIBF upgrade plan that will significantly improve facility reliability and productivity. This \$4.752M upgrade was delivered on-schedule and on-budget, and is now in routine use.

Commissioning was completed in several stages. Individual components were first tested and commissioned, and final commissioning of the entire system occurred on December 6, 2005 when a 1.8uA beam of 42MeV deuterons was delivered from ORIC to the HPTL target station. The beam bombarded a hafnium oxide target coupled to an ion source for the production of Al^{17}F^+ ions. The measured yield of 8×10^6 particles per second was slightly better than expected based on previous measurements at HRIBF's other test and production facilities. Figure 1 shows the decay of activity deposited onto a collection cup. The data points are the number of 511 keV gamma-rays detected during 15-second counting periods after the collection was stopped. The fit to the data indicates a decay half-life of 64.2 seconds, while the half-life of ^{17}F is 64.5 seconds, confirming the ^{17}F content of the beam.

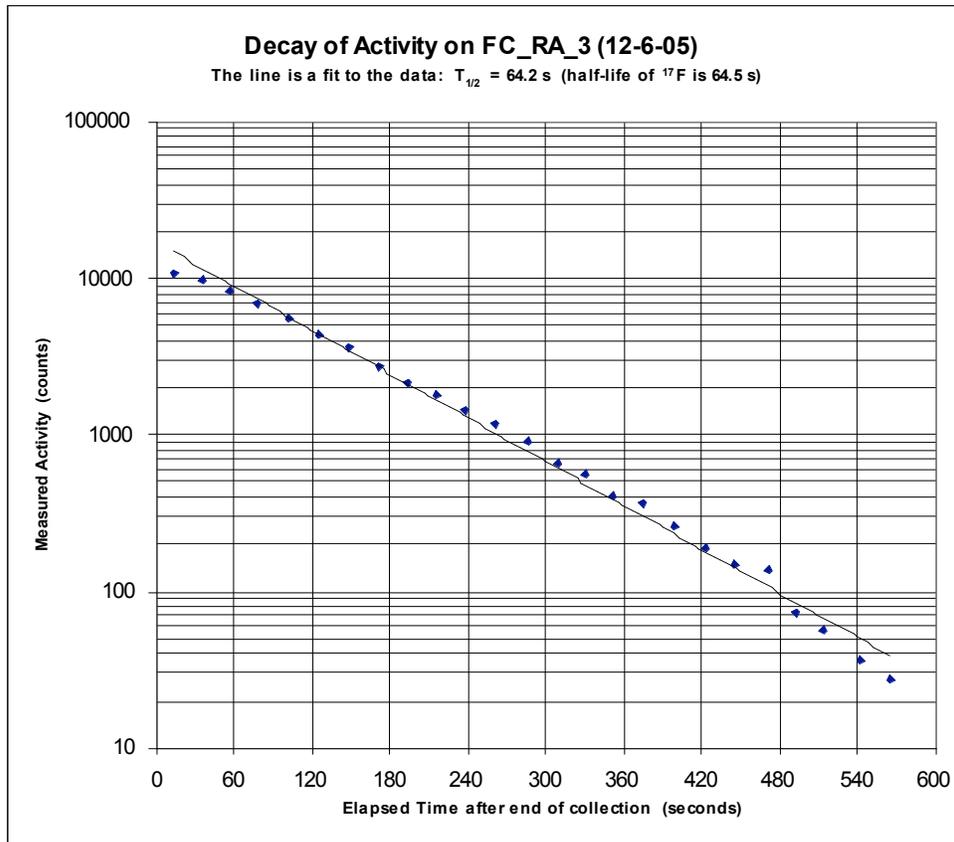


Figure 1: HPTL Commissioning Data