

EXPERIENCES AND LESSONS LEARNED AT CARIBU WITH AN OPEN 252CF SOURCE

S.I. Baker, J.P. Greene, A. Levand, R.C. Pardo, G. Savard, R.C. Vondrasek, L.W. Weber [ANL, Argonne, USA]

Abstract

The CARIBU (the CALifornium Rare Ion Breeder Upgrade) project at ATLAS is based on the creation of beams of neutron-rich nuclei produced as fission fragments from the 3% fission branch that occurs naturally in the decay of Cf-252. These fission fragments are thermalized in ultra-pure helium gas and turned into a charged beam for use by the ATLAS accelerator or 'stopped' beam experiments. This requires a very thin source, electroplated on a stainless steel or platinum backing so that the fission fragments escape into the helium gas and are efficiently thermalized and collected into an ion beam. The information learned from the successive use of two sources with strengths of 2 mCi and 100 mCi has now prepared us for the installation in mid-summer of a 500 mCi source recently produced by Oak Ridge National Laboratory. This paper will describe the radiological monitoring system and our experience with the two weak "open" sources which have exercised and tested our radiological controls, emissions monitors, and procedures for the CARIBU facility and the source transfer area.

**CONTRIBUTION NOT
RECEIVED**