



Burnup and Isotopic Analysis

M.C. Billone

Energy Technology Division

Review of ANL LOCA and Dry-Cask-Storage Programs

Argonne National Laboratory

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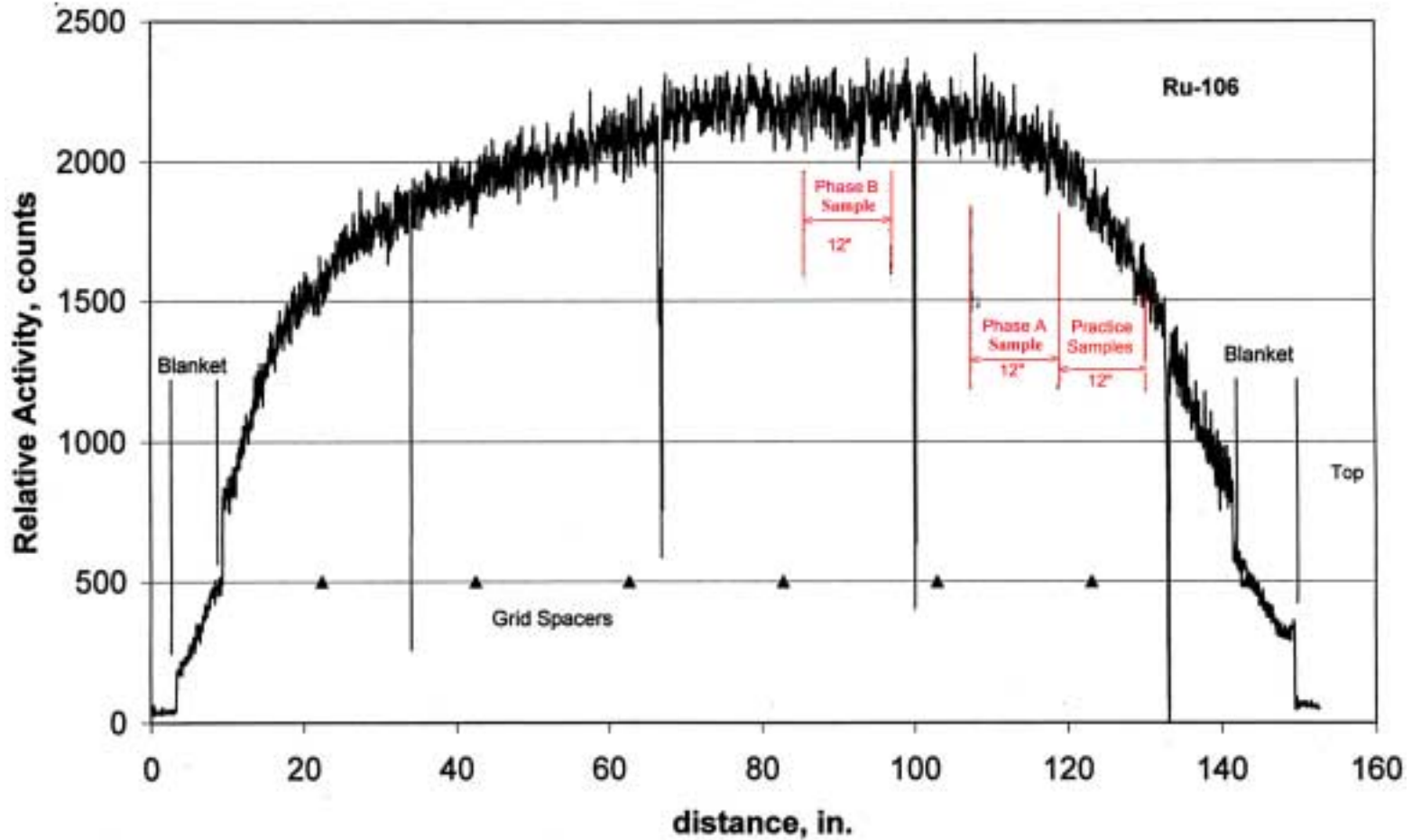


Purpose

- **Limerick High-Burnup BWR (56 GWd/MTU)**
 - Validate GNF burnup calculation
Calculated Peak = 63.4 GWd/MTU vs. 64.3 GWd/MTU “measured”
Uncertainty (63.8-65 GWd/MTU) based on fast neutron spectrum
 - Validate techniques for isotopic analysis
- **Robinson High-Burnup PWR (Burnup Credit for Storage)**
 - Actinide absorbers (U, Pu, Am, Np isotopes)
 - Fission product absorbers (Sm, Nd, Rh, Sm, Gd, Xe, Cs, Tc, Eu, etc.)
- **Program Scope**
 - Robinson Rods A02 and B01 (67 GWd/MTU): 3 locations each
2 Robinson locations in progress
 - Robinson Gadolinia Rod H05 (47 GWd/MTU): 3 locations

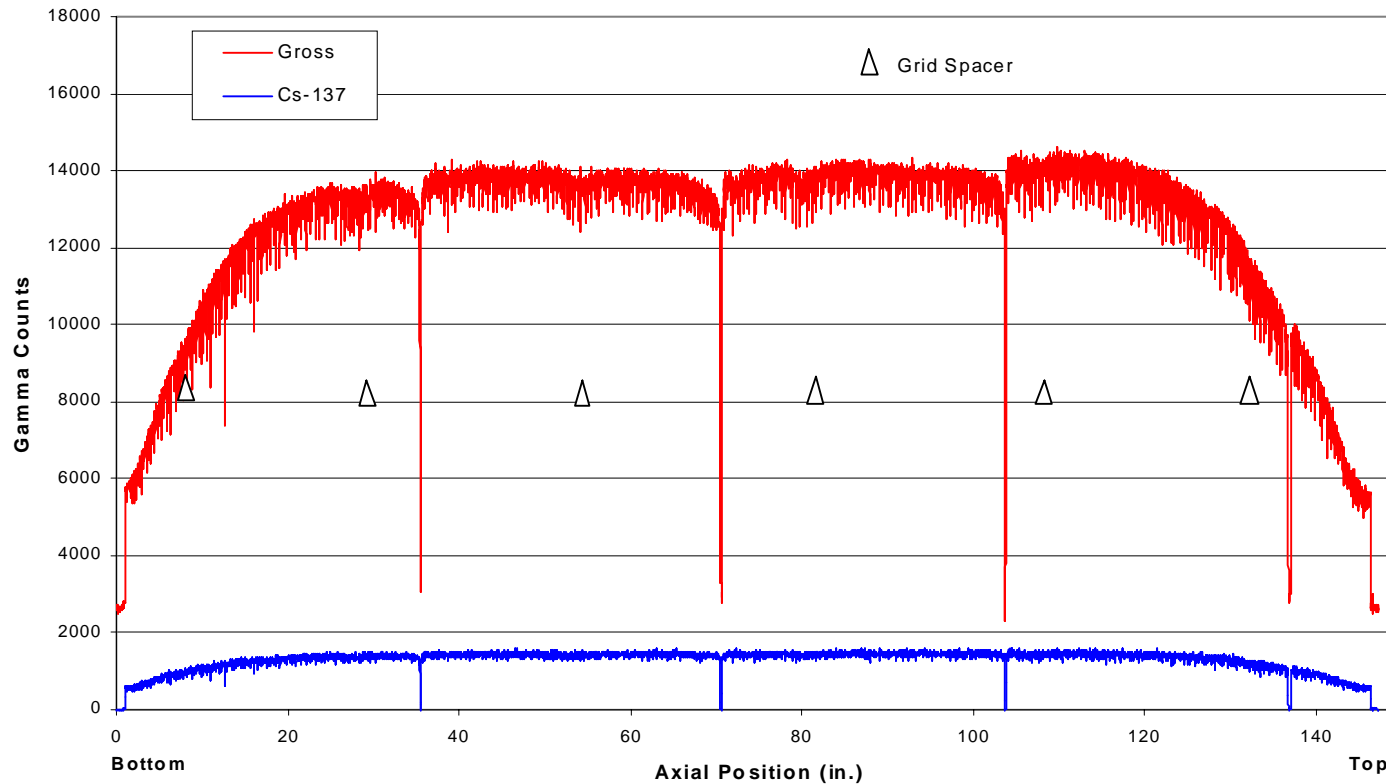
Gamma Scan Results for Limerick BWR F9

Ru-106 Gamma Scan of Limerick Fuel Rod F9

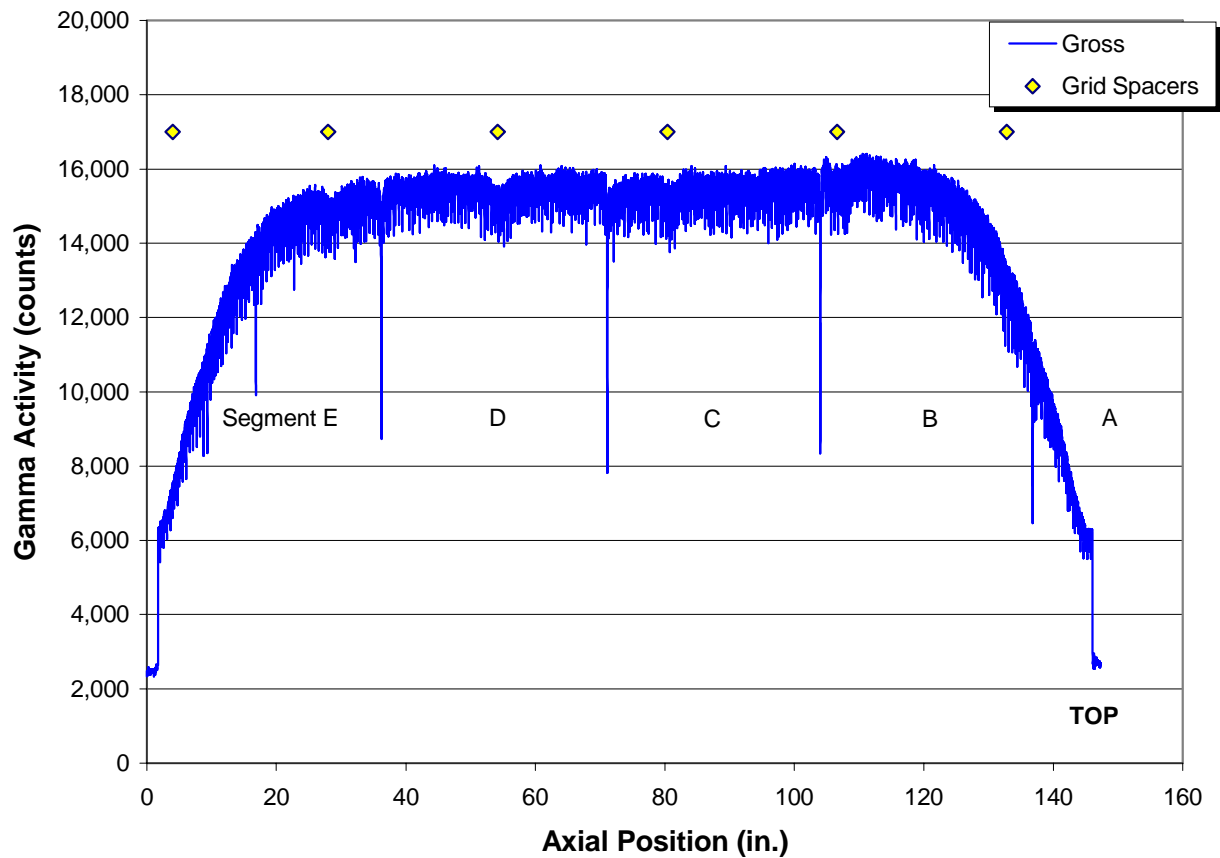


Gamma Scan for Robinson A02

HBR Rod A02 (A/G 611) Composite Gamm Scan Profiles



Gamma Scan for Robinson B01



Gamma Scan for Robinson H05

