

*Exceptional service in the national interest*



# Simple Yet Novel Dismantlement Confirmation Instrument

Gene Kallenbach and Sharon DeLand

Presentation for Joint INMM/ESARDA Workshop: Building  
International Capacity

October 4-7, 2015

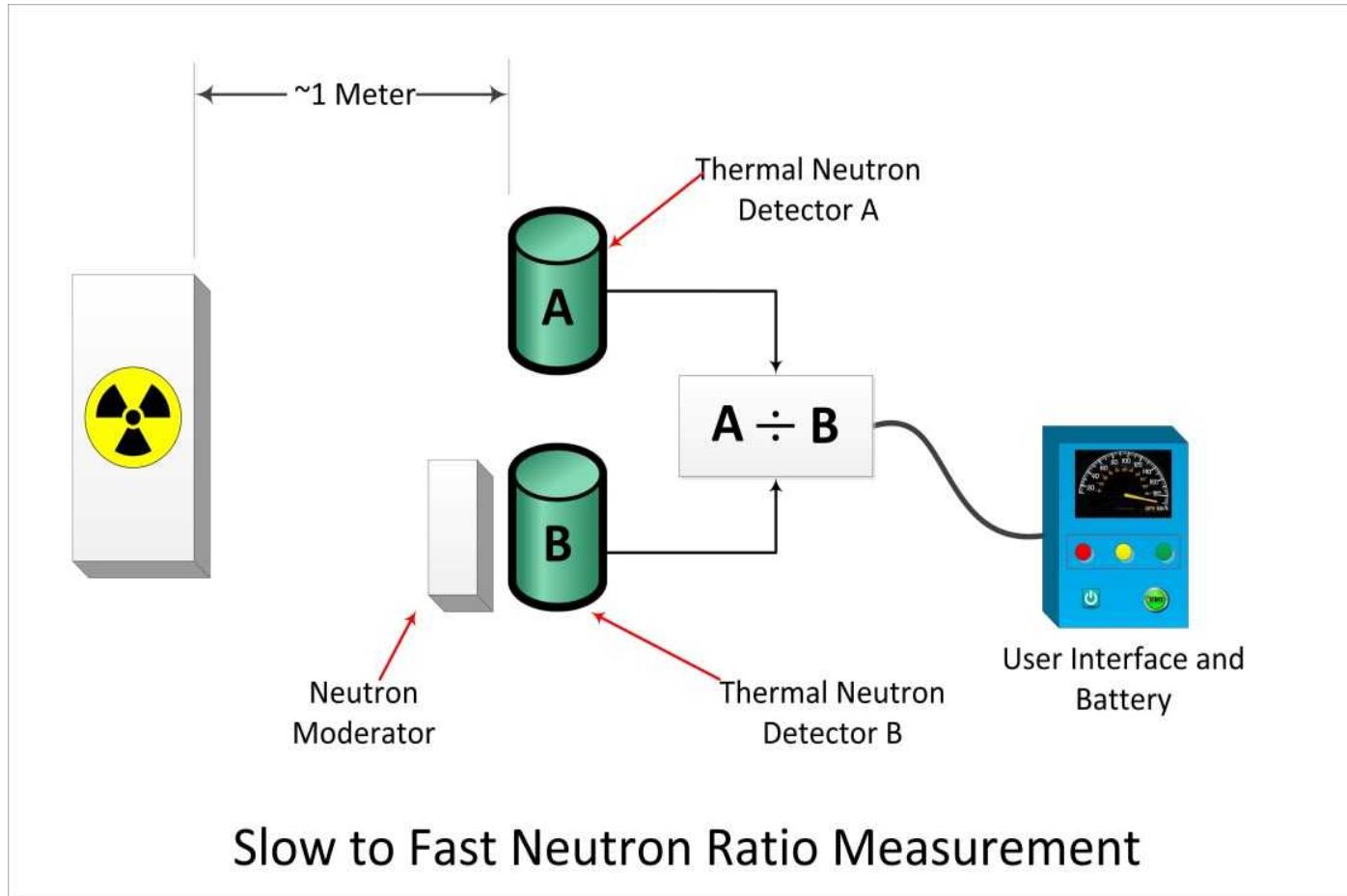


Sandia National Laboratories is a multi-program laboratory managed and operated by Sandia Corporation, a wholly owned subsidiary of Lockheed Martin Corporation, for the U.S. Department of Energy's National Nuclear Security Administration under contract DE-AC04-94AL85000. SAND2015-6672 PE

# Problem Statement

- Generally accepted definition of dismantlement: separation of High Explosives (HE) from the Fissile Material (FM)
- Objective:
  - Provide measurement to confirm separation of HE and FM
  - Authenticatable
  - Certifiable

# Concept



A moderated object (FM +HE) will have a slow-to fast ratio that is higher than an unmoderated object (FM only). This phenomena can be used to determine if the HE has been removed.

# Discussion

- Are there design/implementation choices that would make this concept more (or less) authenticatable or certifiable?
- This instrument would operate within a larger regime. How would this instrument, combined with other elements (e.g, chain of custody) provide confidence?