

PDF Quiz 12: Nuclear Forensics  
 RDCH 702  
 Assigned 4-Dec-17  
 Due 7-Dec-17

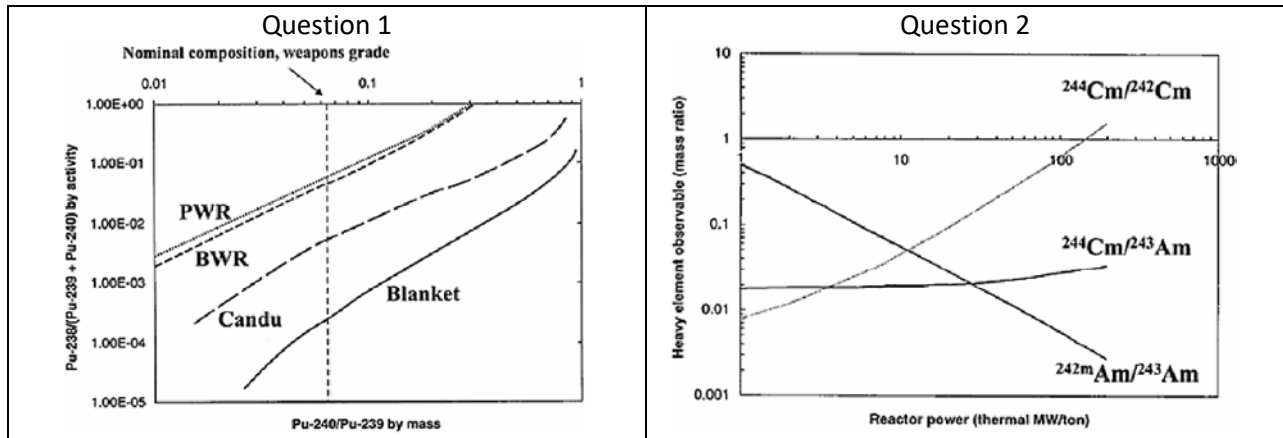
Last Name: \_\_\_\_\_  
 First Name: \_\_\_\_\_

1. You have Pu material, Sample A, with a  $^{240}\text{Pu}:$  $^{239}\text{Pu}$  mass ratio of 0.1. You have a standard at this  $^{240}\text{Pu}:$  $^{239}\text{Pu}$  mass ratio from a CANDU reactor with a  $^{238}\text{Pu}/(^{239}\text{Pu}+^{240}\text{Pu})$  activity ratio. The  $^{238}\text{Pu}/(^{239}\text{Pu}+^{240}\text{Pu})$  activity ratio in sample A is less than that of the CANDU reactor. Select the likely source of the material.

- Boiling Water Reactor       Pressurized Water Reactor       Reactor Blanket

2. Select the isotope ratio that is the least sensitive in determining reactor power for the production of Pu with 6%  $^{240}\text{Pu}$ .

- $^{244}\text{Cm}/^{242}\text{Cm}$         $^{244}\text{Cm}/^{243}\text{Am}$         $^{242\text{m}}\text{Am}/^{243}\text{Am}$



3. Which Pu isotope would be best to determine material age between 5 and 25 years? \_\_\_\_\_

4. Why do Nd fission product isotopes differ from natural Nd isotopes?

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