**Addressing Daughter Products as Part of a Facility's Inventory**

Nathan G. Cathey

Pacific Northwest National Laboratory
Brad Evans, Andy Prichard, Art Stithem

Nathan.Cathey@pnnl.gov

Pacific Northwest National Laboratory (PNNL) uses a wide variety of radioactive materials in performing various research activities. Most radionuclides have decay chains where the parent radionuclide dose conversion factor bounds that of the daughter products, however, this is not the case in many instances. It is important to appropriately account for materials whose daughter products are more limiting with respect to HC-3 TQs at the time initial hazard categorization is performed.

The result of the latter case are Hazard Category 3 threshold quantities (HC-3 TQs) that are more restrictive than the values provided by DOE-STD-1027, and recognition that as the parent decays, higher dose equivalents are generated by the same initial inventory. The approach taken at PNNL is to develop a set of correction factors for these radionuclides and integrated them into the hazard categorization and radioactive material tracking processes.

This presentation will discuss an approach to address selected daughter products as part of a facility's radioactive material inventory. The radionuclides of concern are identified, the method of evaluating the decay chains, and factors comparing the daughter products to their parents are presented.