

SOME DECAY TRANSITIONS IN SPENT FUEL

RADIOISOTOPE	TYPE OF DECAY	HALF-LIFE	DECAY PRODUCTS		
			ISOTOPIC PRODUCT	TYPE OF DECAY	HALF-LIFE
Fission Products					
Gases					
krypton - 85	Beta	10.72 y	rubidium - 85	Stable	
xenon - 133	Beta	5.27 d	cesium - 133	Stable	
Solids					
strontium - 90	Beta	28.1 y	yttrium - 90	Alpha	64 h
molybdenum - 99	Beta	66.7 h	*technetium - 99 ^m	Gamma	6 h
iodine - 131	Beta	8.07 d	xenon - 131	Stable	
cesium - 137	Beta	30.2 y	barium - 137	Stable	
cerium - 144	Beta	285 d	praseodymium - 144	Beta	17.3 m
Natural Elements					
uranium - 235	Alpha	710,000,000 y	thorium - 231	Beta	25.5 h
uranium - 238	Alpha	4,500,000,000 y	thorium - 234	Beta	24.1 d
Transuranics					
plutonium - 238	Alpha	86 y	uranium - 234	Alpha	247,000 y
plutonium - 239	Alpha	24,400 y	uranium - 235	Alpha	710,000,000 y
plutonium - 240	Alpha	6,580 y	uranium - 236	Alpha	23,900,000 y
plutonium - 241	Beta	13.2 y	americium - 241	Alpha	458 y
americium - 241	Alpha	458 y	neptunium - 237	Alpha	2,140,000 y
americium - 243	Alpha	7,370 y	**neptunium - 239	Beta	2.35 d

* "m" indicates a higher energy level than the natural state (i.e., ground state) of technetium - 99

** decays to plutonium - 239