Table 3

Actinide Components and Fission Products in One Kilogram of CANDU Spent Fuel

	Radioactive half-life[1] (years)	Type of radiation	Specific Activity (curies/gram)	Mass (grams)
Actinides				
Plutonium 239[2]	24,390	alpha	6.1×10^{-2}	2.7
Plutonium 241[2]	14	beta	112	
Plutonium 238	87	alpha	17	
Plutonium 240	6,660	alpha	2.3×10^{-1}	1.1
Plutonium 242	387,000	alpha	4.0×10^{-3}	
Americium 241	458	alpha, gamma	3.2	
Americium 242	0,0018	beta, gamma	8.2×10^{5}	
Americium 243	8,000	alpha	1.9×10^{1}	1.2
Curium 242	0.51	alpha, neutrons	3,320	
Curium 243	32	alpha	47	
Curium 244	17.6	alpha, neutrons	83	
Fission Products	Radioactive half-life (days)			
Iodine 131	8.1	beta, gamma	1.2×10^{5}	
Xenon 133	5.3	beta, gamma	1.9×10^{5}	
Krypton 85	3,944.0	beta, gamma	391	9
Ruthenium 106	368.0	beta	3.35×10^{3}	
Tellurium 127	109.0	beta, gamma	9.43×10^{3}	
Cesium 137	10,957.0	beta, gamma	87	

[1] The time required for half the atoms of a radioactive substance to disintegrate.
[2] Fissionable actinide.

Source: Ontario, Royal Commission on Electric Power Planning (Arthur Porter, President), *A Race Against Time: Interim Report on Nuclear Power in Ontario*, 1978, p. 74-75.

equipped with appropriate cooling systems, using either water or air. In Canada, fuel bundles are stored in water-filled bays for about five years, after which they can be stored in dry concrete containers. Although this storage is temporary, it can be maintained for several decades, until a disposal or a more long-term storage method can be determined.

After considering disposal of high-level radioactive wastes by such methods as burial in the polar ice caps or in ocean trenches, shooting them into space, or transforming radioactive elements somehow into non-radioactive elements, most scientists have decided to focus their research on burial of the waste deep in geological formations judged to be stable. A number of very expensive pilot underground installations have been built, in, among other countries, Belgium, Canada, the United States, the Federal Republic of Germany, Sweden and Switzerland.[23] For its part, Canada is participating actively in international projects and the exchange of information on radioactive waste management. Atomic Energy of Canada Ltd.

[23] Fareeduddin and Hirling (1983), p. 4.