

Table 13.17 Beta Dose Rate (nGy h^{-1}) at Various Depths in Water, on the Axis of a 1 Bq cm^{-2} Plane Isotopic Source Distributed Uniformly over a 1 cm^2 Circular Area on an Air-Water Boundary (After Cross et al., 1992b)*

Nuclide	nGy h^{-1}			Nuclide	nGy h^{-1}		
	0.07 mm	3 mm	10 mm		0.07 mm	3 mm	10 mm
^{14}C	290			$^{113\text{m}}\text{Cd}$	1341		
^{22}Na	1442			^{122}Sb	1617		
^{24}Na	1692	32.8		^{123}Sn	1030		
^{28}Al	1846	298	2	^{123}I	305		
^{31}Si	1715	48.3		^{124}Sb	1389	46.6	
^{32}P	1726	89.5		^{125}Sb	679		
^{35}S	310			^{126}I	697	1.8	
^{36}Cl	1577			^{129}I	149		
^{38}Cl	1856	270	27.7	^{131}I	1319		
^{42}K	1852	314	13.2	^{132}I	1576	43.2	
^{45}Ca	747			^{134}Cs	1000		
$^{52\text{m}}\text{Mn}$	1757	268	0.8	^{135}I	1508	14.2	
^{52}Fe	974			^{137}Cs	1432		
^{56}Mn	1701	163	1	^{140}Ba	1455	0.7	
^{56}Ni	25.5			^{140}La	1639	28.5	
^{57}Co	68.4			^{141}Ce	1538		
^{58}Co	245			^{143}Pr	1524	0.3	
^{59}Fe	1027			^{144}Ce	815		
^{60}Co	935			^{144}Pr	1815	285	3
^{64}Cu	813			^{147}Pm	535		
^{65}Zn	21.7			^{153}Sm	1425		
^{66}Cu	1819	243	0.5	^{154}Eu	1840	11.6	
^{74}As	1060	7.8		^{155}Eu	270		
^{82}Br	1181			^{182}Ta	1780		
^{85}Sr	8.9			^{192}Ir	1384		
^{88}Rb	1940	364	38.6	^{198}Au	1564	0.4	
^{89}Sr	1667	54.6		^{201}Tl	208		
^{90}Sr	1377			^{203}Hg	820		
^{90}Y	1756	200		^{204}Tl	1346		
^{95}Zr	1058			^{208}Tl	1737	54.9	
^{95}Nb	230			^{210}Bi	1471	2.4	
^{99}Mo	1537	9.6		^{212}Pb	1707		
^{99}Tc	922			^{212}Bi	1071	81.8	
$^{99\text{m}}\text{Tc}$	207			^{214}Pb	1499		
^{105}Rh	1168			^{214}Bi	1639	86.5	1.1
^{106}Rh	1845	326	10.3	^{228}Ac	1542	16.6	
^{109}Cd	491			^{231}Th	738		
^{110}Ag	1821	278	1.9	^{234}Th	348		
$^{110\text{m}}\text{Ag}$	407	57.9		$^{234\text{m}}\text{Pa}$	1724	152	

* This data for a 1 cm^2 source serves equally well for a point source, and underestimates a 100 cm^2 circular area of 1 Bq cm^{-2} by no more than 11%.