

## *Units of Measure and Half-Life Periods*

### UNITS OF RADIATION MEASUREMENT AND CONVERSIONS

U.S. System	International System	Conversion
curie (Ci)	becquerel (Bq)	1 Ci = $3.7 \times 10^{10}$ Bq
rad	gray (Gy)	1 rad = 0.01 Gy
rem	sievert (Sv)	1 rem = 0.01 Sv

### APPROXIMATE METRIC CONVERSIONS

When you know	multiply by	to obtain	When you know	multiply by	to obtain
centimeters (cm)	0.39	inches (in.)	in.	2.54	cm
meters (m)	3.28	feet (ft)	ft	0.305	m
kilometers (km)	0.62	miles (mi)	mi	1.61	km
kilograms (kg)	2.20	pounds (lb)	lb	0.45	kg
liters (L)	0.264	gallons (gal)	gal	3.785	L
cubic meters (m <sup>3</sup> )	35.32	cubic feet (ft <sup>3</sup> )	ft <sup>3</sup>	0.03	m <sup>3</sup>
hectares (ha)	2.47	acres	acres	0.40	ha
square kilometers (km <sup>2</sup> )	0.39	square miles (mi <sup>2</sup> )	mi <sup>2</sup>	2.59	km <sup>2</sup>
degrees Celcius (°C)	1.8 (°C) + 32	degrees Fahrenheit (°F)	°F	(°F - 32) / 1.8	°C

### SCIENTIFIC NOTATION USED FOR MEASUREMENTS

Multiple	Decimal Equivalent	Notation	Prefix	Symbol
1 x 10 <sup>12</sup>	1,000,000,000,000	E+12	Tera-	T
1 x 10 <sup>9</sup>	1,000,000,000	E+9	giga-	G
1 x 10 <sup>3</sup>	1,000	E+03	kilo-	k
1 x 10 <sup>-2</sup>	0.01	E-02	centi-	c
1 x 10 <sup>-3</sup>	0.001	E-03	milli-	m
1 x 10 <sup>-6</sup>	0.000001	E-06	micro-	μ
1 x 10 <sup>-9</sup>	0.000000001	E-09	nano-	n
1 x 10 <sup>-12</sup>	0.000000000001	E-12	pico-	p

### CONCENTRATION CONVERSIONS

1 ppm = 1,000 ppb
1 ppb = 0.001 ppm = 1 μg/L*
1 ppm = 1 mg/L = 1000 μg/L*

\* For aqueous fractions only.

APPENDIX C: Units of Measure and Half-Life Periods

HALF-LIFE PERIODS	
Am-241	432.7 yrs
C-11	~20 min
Co-60	5.3 yrs
Cs-137	30.2 yrs
N-13	~10 min
N-22	2.6 yrs
O-15	~2 min
PU-238	87.7 yrs
Pu-239	24,100.0 yrs
Pu-240	6,560.0 yrs
Sr-90	29.1 yrs
tritium	12.3 yrs
U-234	247,000.0 yrs
U-235	~700 million yrs (7.0004E8)
U-238	87.7 yrs