RADIONUCLIDE DATA SHEET
Technetium – 99

Tc – 99 43 protons 56 neutrons

Radiation: **Decay mode:** Beta

Major Betas:

Max E (MeV)	Avg E (MeV)	# per 100 dis
0.294	0.085	100

Max. Beta Range in air 79 cm or 2.59 ft
Max. Beta Range in water 0.08 cm

Major Gammas:

E (MeV)	# per 100 dis
None	

Avg. gamma E = 0 MeV

Half – life: 2.13E+05 years or 7.78E+07 days

Gamma constant: 0 mR/hr per 1 mCi at 30 cm

Radiological data:

Min. Ingestion ALI: 4000 μCi equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 700 μCi equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 μCi over 10 cm^2 of skin
0 mrad/hr (gamma dose)
Point Source: 415 mrad/hr (beta dose)
Disk Source: 419 mrad/hr (beta dose)

Shielding data:

Max. range for beta:	Plastic	=	0.08 cm
	Aluminum	=	0.04 cm
Tenth Value Thickness for average gamma:	Concrete	=	0 cm
	Lead	=	0 cm

Detection Information: Usable Detectors listed with estimated efficiencies
(Use efficiencies listed on instrument when available)

Ludlum 3 with pancake probe at 1 cm:	4 %	**Liq. Scint. Counter:**	85 %
Ludlum 3 with NaI probe near surface:	0 %	**Gamma Counter:**	0 %

Action Quantities:

Bench top quantity must be less than	7000 μCi
Containers require labeling when greater than	100 μCi
Rooms require posting when there is greater than	1000 μCi
Contamination lasting more than 24 hrs require NRC notification when greater than	3500 μCi

Updated – 08/02/2005