Radiation:

Decay mode: Beta to Ba-137m

<table>
<thead>
<tr>
<th>Major Betas:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Max E (MeV)</td>
<td>Avg E (MeV)</td>
</tr>
<tr>
<td>0.512</td>
<td>0.157</td>
</tr>
<tr>
<td>1.173</td>
<td>0.415</td>
</tr>
</tbody>
</table>

Max. Beta Range in air: 1300 cm or 42.7 ft
Max. Beta Range in water: 1.5 cm

Gamma constant: 4.24 mR/hr per 1 mCi at 30 cm

Half – life: 30.17 years or 1.1E+04 days

Gamma constant: 0.662 MeV

Radiological data:

Min. Ingestion ALI: 100 µCi equals 5 rem TEDE (Whole Body)
Min. Inhalation ALI: 200 µCi equals 5 rem TEDE (Whole Body)

Doses:

Skin Dose: Reported for 1 µCi over 10 cm² of skin
? mrad/hr (gamma dose)
Point Source: 511 mrad/hr (beta dose)
Disk Source: 513 mrad/hr (beta dose)

Shielding data:

Max. range for beta:
Plastic = 0.53 cm
Aluminum = 0.25 cm
Concrete = 13 cm
Lead = 1.7 cm

Tenth Value Thickness for average gamma:

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

<table>
<thead>
<tr>
<th>Detector</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ludlum 3 with pancake probe at 1 cm</td>
<td>7 %</td>
</tr>
<tr>
<td>Ludlum 3 with NaI probe near surface</td>
<td>4 %</td>
</tr>
<tr>
<td>Liq. Scint. Counter</td>
<td>90 %</td>
</tr>
<tr>
<td>Gamma Counter</td>
<td>30 %</td>
</tr>
</tbody>
</table>

Action Quantities:

Bench top quantity must be less than 1000 µCi
Containers require labeling when greater than 10 µCi
Rooms require posting when there is greater than 100 µCi
Contamination lasting more than 24 hrs require NRC notification when greater than 500 µCi