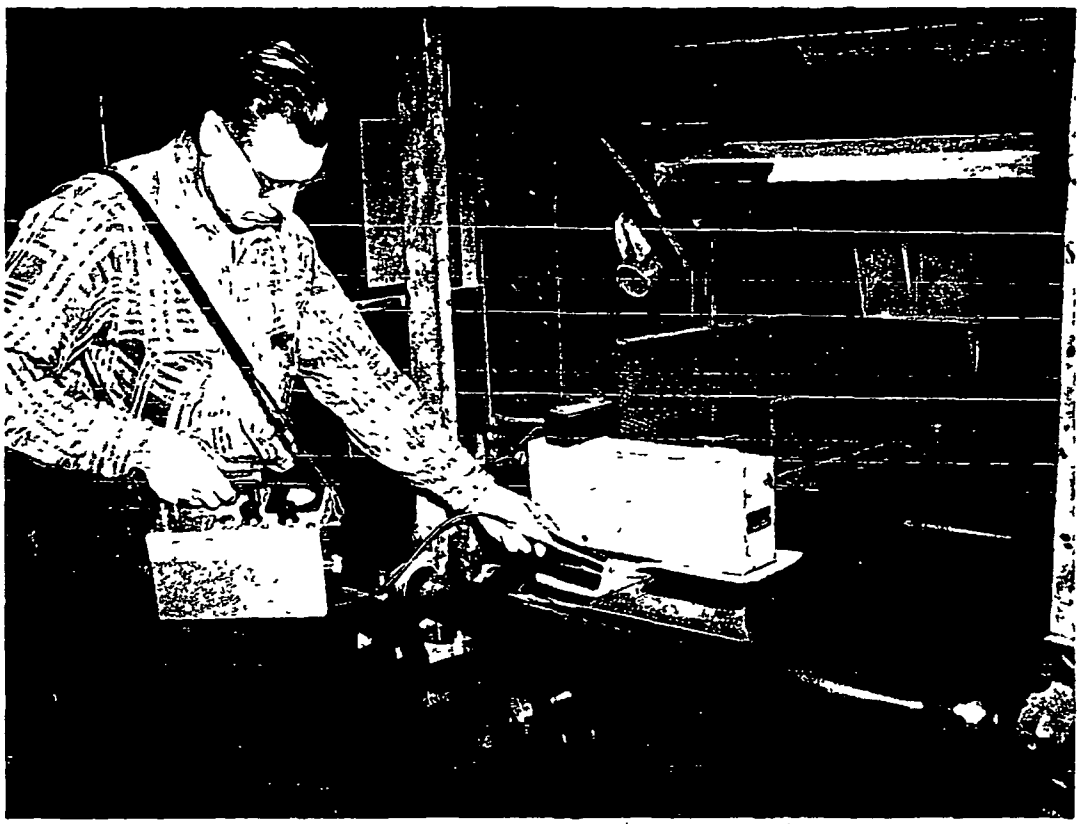

FIG 44-6 —Radiation level near beta ray gauge used to measure thickness of steel strip is checked with a Geiger counter

Courtesy Armco Steel Corp

considerations Of course, special circumstances can greatly affect the safety requirements

It should be noted that measurement of radiation and radioactivity is not always done for safety reasons Often, such measurements are made to provide background information against which future measurements can be compared Frequently, radionuclides are employed so that measurements of their radiation will disclose useful information One example is the employment of radioactive sources to effect quantitative or dimensional control of industrial materials (for example, to measure fluid-flow rates, and thicknesses of semifinished or finished products)

Sealed sources. Sealed sources are available that have widely varying amounts of radioactivity A high intensity source may require so much shielding that it will not be portable Shielding, control devices, and procedures should be designed by someone experienced in such work Keeping external exposures to personnel under control should be easily accomplished with the aid of alarms, strict control of access, and thorough monitoring (Figs 44-5 and -6) [See NBS Handbook 73, *Protection Against Radiation from Sealed Gamma Sources* (1960), and also Handbook 66, *Safe Design and Use of Industrial Beta-Ray Sources* (1958)]

At the other extreme, if the source is of trivial size, it should present no more difficult problem than that of keeping track of its presence