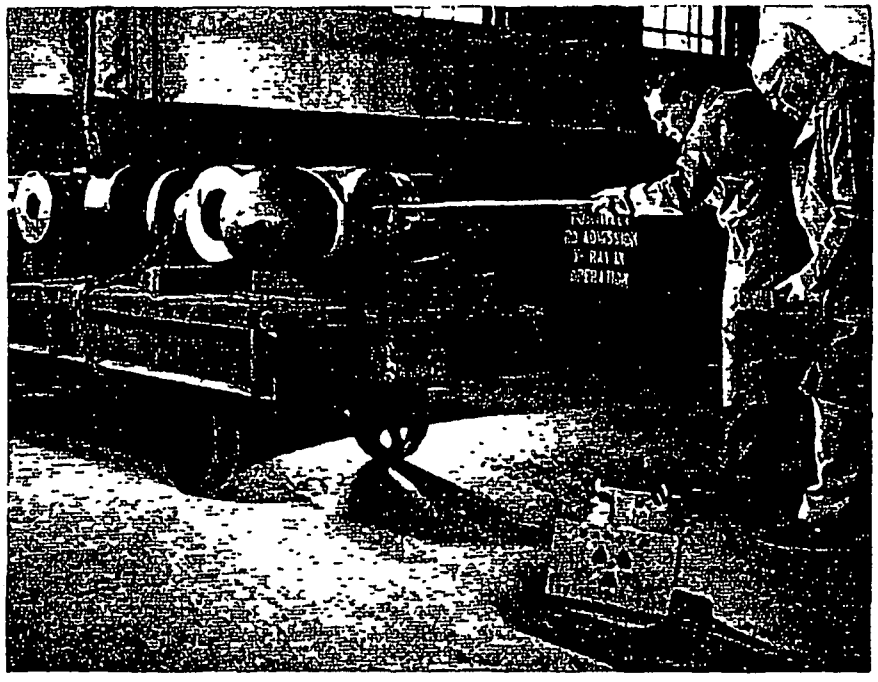


Fig 27-15 "Pill" of radioactive cobalt-60 is placed inside newly cast pump housings Radiation exposes X-ray film strapped to outside of castings and shows up defects Aluminum rod is long enough to keep operators and radiation source safely separated. Second man monitors exposure during inspection

such areas Recommendations of the manufacturer of the equipment should be followed explicitly

Radiography

Radiography uses X-rays, gamma rays, or beta rays X-rays are unidirectional, and their wavelengths can be varied (within certain limits) to suit the condition Gamma and beta radiography differ from X-ray radiography in that the gamma and beta rays are multidirectional and their wave lengths, being characteristic of the source cannot be regulated Gamma rays for radiography usually are obtained from isotopes of cobalt-60, cesium-137, iridium-192 (Fig 27-15) Important pure beta-emitting sources are strontium-90, yttrium-90, technetium-99, and promethium-147.

Exposures made by gamma rays usually take longer to complete than do X-ray exposures Also, in some instances, gamma exposures are inferior to X-ray exposures in sensitivity and contrast

Gamma radiography, however, has several advantages Because of the nature of isotopes, it frequently is possible to make a number of tests simultaneously, provided that specimens can be suitably located Moreover, isotopes are independent of electrical power, their sources are portable, and the small size of the sources makes it possible to obtain radiographs in tight quarters.

Beta ray emitters are provided in the form of sealed sources and are used primarily for measuring sheet metal thickness.

Devices used to transform differences in