

installation should be used

In some instances (e g , where large pieces must be handled), a radiography room is not practical. An area within the plant must be roped off and posted with warning signs or otherwise barricaded to prevent unauthorized personnel from entering the area. Sometimes it has been found that segregating the operation with respect to time is the only solution to this problem, that is, to perform radiography at night or other times when there are no other workmen in that part of the plant. Others have solved the problem by fencing off an open area outside the buildings in such a manner that unauthorized persons cannot enter the high radiation zones.

Similar measures must be taken to restrict areas where radiography is performed in the field. Radiation safety problems in field radiography can be complicated by the curiosity of bystanders, the presence of other uninformed workers on the project and possible temporary misplacement of a "free" gamma source. In such field applications as radiographing welds on pipelines, pressure tanks, refineries and other construction projects, there should be a thoroughly trained radiation safety supervisor in charge of the work. He is responsible for maintaining adequate precautionary measures to prevent unnecessary exposure of personnel.

Radiation warning signs should be posted and restrictive barriers erected to control traffic in the vicinity of an exposed source. The warning sign should include (a) DANGER-RADIATION, KEEP AWAY (DO NOT LOITER) and (b) the radiation symbol, Fig 44-15.

Radiation safety rules should be explained to the workers and their cooperation enlisted in maintaining a safe standard of operation. Where a project may be delayed by restricting the area to other workers, here again, consideration should be given to making radiographs at odd hours when few or no other persons are around. The contractor should be made aware of the safe limits of radiation exposure so that unreasonable production schedules are not requested. Generally speaking, the most important item with regard to field radiography is to make sure that the restricted site is always under surveillance by the person in charge so that unauthorized workers, bystanders, or curiosity seekers do not enter.

An appropriate survey instrument should

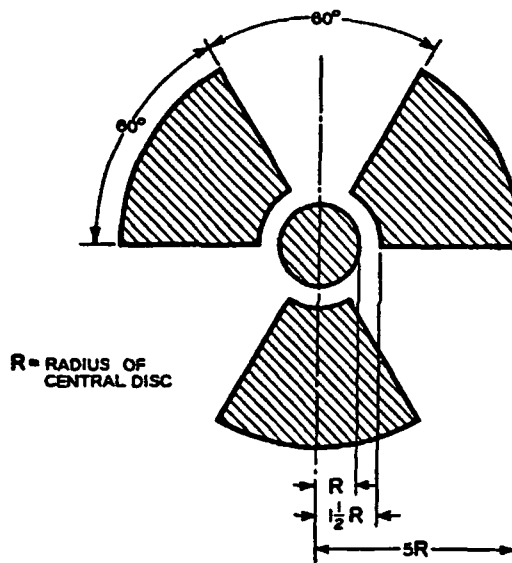


FIG 44-15 - The American Standards Institute recommends this symbol for radiation warning signs. Symbol should be reddish-purple, displayed against a yellow background and should be accompanied by the word "RADIATION" in yellow letters on reddish-purple panel. Radiation signs should be proportioned the same as "danger" signs and sized according to the area to be marked. See ASI Standard N2.1 "Radiation Symbol."

be immediately available at each field installation. Radiation surveys of the radiographic setup for the purpose of establishing working times within the area should be a routine procedure in the field. A survey gives the operator a quick means of determining dose rates around the site and determining where restrictive barriers should be placed. Personnel monitoring, such as film badges, is also essential for those workers engaged in routine radiographic work.

Although misplacement of radiation sources is not to be tolerated, it is possible for them to be accidentally dropped behind equipment and in locations where the capsule is not visible. Small sources should therefore be tagged or labeled. Where a source is misplaced, every effort should be made to recover the source immediately without overexposure to personnel. Without the use of a survey instrument, such as a geiger or scintillation counter, it would be difficult, if not