

THE PREVENTION OF ACCIDENTS IN INDUSTRIAL
GAMMA RADIOGRAPHY

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ABSTRACT

In France, in 1979, after the accident at Montpellier, due to a source of Iridium 192 which fell from an apparatus and was picked up by a workman, the "Institut de Protection et de Sûreté Nucléaire" (Nuclear Protection and Safety Institute) carried out a detailed investigation of past incidents in radiography. It was considered whether other techniques using non-destructive control were equivalent and whether X-rays could be used instead of radioactive sources. It became apparent that gamma radiography is indeed necessary. In order to put this technique to use in adequate conditions of safety, an analysis of risks was therefore undertaken. This analysis was brought to bear on the following topics : particular working conditions, staff training, equipment reliability, source selection and lessons learned from incidents. It has also been established that transport of apparatus by road takes place very frequently. A special set of regulations was therefore implemented for this type of transport. It was found necessary to inquire into the causes of those accidents which are more liable to occur than others, and whose degree of seriousness is higher. 90 % of the apparatus are portable and fulfill three functions : as containers for storage, as gamma radiography cameras on the work site, and as packagings for transport. Many measures have been taken. However, the ultimate responsibility lies with the operator who must, at any time, know the location of the source and make sure, at the end of the process, that the source has been safely brought back into storage position inside the apparatus.