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## Gamma Scanning Technique as an Efficient Investigation Tool for Diagnostics and Troubleshooting in Industry –Case Studies

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In nuclear technique applications in industry, gamma scanning is recognized as a simple but very common and useful on-line investigation technique for diagnostics and troubleshooting in industry. Based on the principle of attenuation of gamma beam intensity according to the density of material while penetrating through the object, gamma scanning provides data or information about situation of components such as pipe, columns to optimize the performance or to identify maintenance requirement.

Among a number of applications carried out by CANTI, this paper gives the typical case studies of use of gamma scanning to detect damage, blockage in pipeline and to investigate of malfunction in process columns in the petroleum refinery which provided the technical evidences to engineers in planning the troubleshooting.

Gamma column scanning was used to determine the malfunction in the flue gas absorber tower of Dungquat Refinery. The scanning results showed the heavy foam occurred in many trays that help the operator to adjust the operational parameters to recover the normal performance which was confirmed by the re-scanning data afterward.

In other applications of gamma column scanning, the inside situation of columns such as tray damage, flooding, deformation of tray... was also detected that is useful to plan the maintenance.

In pipeline, gamma scanning technique was used to detect the blockage inside flare pipeline, to inspect the damage of refractory inside the withdrawing well and to detect the part of steel valve dropped and stuck inside the steam pipeline.

In many cases, gamma scanning showed as the only technique to solve problem owing to the high penetration capability of gamma ray through the thick steel wall of components that allows to “see” inside the object; and implementation of the online inspection without shutting down the process.

### Country/Organization invited to participate

Viet Nam

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