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Identification of the Internal Condition of Crude Oil Distillation Unit Using Gamma Column Scanning Technique in Myanmar

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Gamma Column scanning technique was utilized to identify of mechanical problems such as missing, collapsed or buckled trays in trayed column of Crude Oil Distillation Unit C at the No. (1) Refinery (Thanlyin), Yangon, Myanmar. It has 52 trays, diameter is 2 meter and height is 43.55 meter. Scanning type of work is Blank Scan and this unit has been shutdown since 2010 due to some processing problem. Refinery wanted to know internal condition of a column before operation.

The scanning work was performed using 50 mCi ^{60}Co gamma source, NaI (Tl) scintillation detector, manipulation system (winchers) and ColScanCK1 Data Acquisition (DAQ) system with NibraS software to investigate condition of all trays.

Refer to the mechanical drawing of the tower, the point at elevation of 7350 mm was assigned as starting point of the scan and it was notified as 0 mm. Three scan lines were selected; one for single pass trays and two for double pass trays within the left and right down comer areas of Distillation Unit. Radiation source was placed at 44 degree, 59 degree and 107 degree and detector was placed at 224 degree, 291 degree and 224 degree in respectively.

It was challenged to scan because the space between insulator and ladder is very narrow, in some places detector and source were passed the ladder with considering of radiation safety aspect. Although size of tray # 1 to 8 are very small and wall of column is very thick in these place, we could determine tray # 1 to # 8 were in their positions. From identification, all scan profiles interpreted that tray # 1 to # 52 were normal and in their positions.

Country/Organization invited to participate

Myanmar

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