

3970603621 : MAJORNUCLEAR TECHNOLOGY

KEY WORD MONTE CARLO/ Tc-99m / RADIOTRACER

SONGSAK ONGWATTANAKUL : MONTE CARLO CALCULATION OF INJECTION ACTIVITY OF RADIOTRACER IN LIQUID SYSTEMS. THESIS ADVISOR : ASSOC. PROF. NARES CHANKOW, M. ENG. THESIS COADVISOR : PROF. DR. ESAM HUSSEIN, Ph.D., P.ENG. 83 pp. ISBN 974-333-197-2.

The Monte Carlo N-particle Transport code version 4A (MCNP 4A code) was used to calculate the counting yield of 143-keV gamma-ray photons emitted from Tc-99m solution dissolved in water contained in cylindrical tanks and pipes of diameters 10 to 25 cm. The results were compared with those obtained from the experiments using a 2" x 2" NaI(Tl) detector and from an analytical calculation model taking into account the geometrical and self-absorption factors. The results obtained from the MCNP calculation were found to be proportional to the actual counting efficiencies. The Monte Carlo calculation may be used to help estimating the required injection activity of radioactive substance to obtain information on the flow rate, residence time and mixing time.

ภาควิชา.....นิวเคลียร์เทคโนโลยี.....

สาขาวิชา.....นิวเคลียร์เทคโนโลยี.....

ปีการศึกษา.....2542.....

ลายมือชื่อนิสิต.....ทรงศักดิ์ อ่องวาทันกุล.....

ลายมือชื่ออาจารย์ที่ปรึกษา.....อนุวัตร ธรรม.....

ลายมือชื่ออาจารย์ที่ปรึกษาร่วม.....Esam Hussein.....