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Dose Assessment for Potential External Exposure
from Residual Photon Emitters in Soil

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Abstract

It has been known that residual photon emitters have an influence on the worker and public during decommissioning. Therefore, dose assessments have to be accomplished for external exposure from residual photon emitters in soil. Many models and methodologies of external dose assessment that have been used currently are based on the ICRP 26 and the conversion coefficient of ICRP 51. The ICRP 60 published in 1990, however, have many significant differences in radiation protection and the ICRP has presented the new conversion coefficients for external radiation protection in ICRP 74 according to ICRP 60.

In this study, estimates of the air-absorbed dose were converted into the effective dose. The effective dose is based on the concept of weighted organ doses, as recommended by the ICRP. The ICRPs latest conversion coefficients were used to transform point air-absorbed doses into effective doses. Conversion coefficients based on the ICRP 74 have a tendency to decrease compared with that based on ICRP 51. Finally, the effective dose based on new dose conversion coefficients about some radionuclides have been calculated and compared with the result based on old coefficients.