ESR DOSIMETRY OF ENAMEL AND DENTIN TAKEN FROM VICTIMS OF JCO ACCIDENT

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Gamma and neutron doses were estimated for the teeth taken from two victims of the critical accident at JCO nuclear fuel conversion facility in Tokai-mura on September, 30, 1999. Based on the difference in sensitivities of the dosimetric ESR (electron spin resonance) signal to gamma and neutron doses for enamel and dentin, those doses were calculated from the ones equivalent to gamma ray doses which are the direct measure of the ESR measurements. The ESR (equivalent) doses were obtained both for enamel and dentin samples of two victims by the calibration method. The gamma ray doses were estimated to be 10.2 ± 0.4 and 9.4 ± 0.6 Gy while meaningful neutron doses were not obtained due to the characteristics of the equation and sensitivity factors which yield large error in calculating neutron doses.