RADIOCARBON RELEASE LEVELS OF NUCLEAR FUEL ENERGETIC COMPLEX SITES ON THE FORMER SOVIET UNION TERRITORY

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Radiocarbon releases in the form of CO^2 ($^{14}CO_2$) for different sites of nuclear fuel energetic complex on the territory of former Soviet Union were observed in comparison - Fuel reprocessing plant (Tomsk-7, Russia), the greatest on the territory of Ukraine Zaporozhje NPP (operational releases) and Chernobyl NPP (operational and accidental releases). Radiocarbon concentration was examined in tree rings of pine tree. Samples was measured using modern LS spectrometer Quantulus 1220™. Benzene samples were counted adding PPO 4,0 $g \cdot L^{-1}$ and POPOP 0,1 $g \cdot L^{-1}$ as scintillation agent. Releases value of $^{14}CO_2$ was estimated for Tomsk-7 up to 30 (45) TBq annually since 1985 to 1988 or 450 (620) TBq for operation period of 1959 to 1993. Releases of $^{14}CO_2$ for Zaporozhje NPP was estimated to be up to 2,2 TBq annually. $^{14}CO_2$ releases of Chernobyl NPP was estimated to be up to 3,3 TBq annually or up to 20,8 TBq for operation period till 1996. Chernobyl NPP accidental $^{14}CO_2$ releases fraction was estimated to be 50,0 TBq. Aerosol fraction of radiocarbon accidental release at Chernobyl NPP was estimated from 12 to 62 TBq.