

Radiological Consequences of the Fire in the Chernobyl Exclusion Zone in April 2015

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On the basis of analyses of the remote sensing data, the areas of large grass fires (6250 ha), ground (2737 ha) and crown (1140 ha) forest fires in the Chernobyl exclusion zone in 2015 were determined; on April, 26–27th – 1.735 ha, 28th – 5.761 ha and 29th – 2.631 hectares. The total area was 10.127 ha. The maximum density of the radionuclide contamination inside the fire perimeter in the forest blocks 306–308 of the Lubyanka forest ranger district was 1040 kBq/m² for ¹³⁷Cs; 368 kBq/m for ⁹⁰Sr; 11.4 kBq/m² for ^{238–240}Pu; 14.4 kBq/m² for

²⁴¹Am. Wherein expected effective doses to fire-fighters during one fire-line hour did not exceed 0.64 μSv in case of external exposure and 0.37 μSv in case of internal exposure. It is shown that the expected effective dose of internal exposure to fire-fighters during suppression of wildfires will be below the dose from external exposure. At the moment, exposure to ⁹⁰Sr and ²⁴¹Pu (along with ^{238–240}Pu and ²⁴¹Am) makes the most significant contribution to the internal dose to fire-fighters during suppression of forest and grassland fires in the Chernobyl exclusion zone. Resuspension of radioactive aerosols by the fire in April 2015 did not have a significant influence on the secondary contamination of the territory and additional exposure of residents outside the Chernobyl exclusion zone.