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PAPER TITLE CHARACTERISTICS OF THE RADON DECAY PRODUCTS FORMED IN THE ATMOSPHERE ABOVE A RADIUM-BEARING WASTE PILE

AUTHOR(S) NAME(S) RAVIART S., RICHON P., HARISTOY D., ROBE M.C., BELOT Y.

SUBMITTING AUTHOR

LAST NAME RAVIART FIRST NAME Sylvie TITLE

AFFILIATION IPSN/DESI TEL 19 1 46 54 74 52

STREET BP N°6 FAX 19 1 46 57 62 58

CODE 92265 CITY FONTENAY-AUX-ROSES COUNTRY FRANCE

PRESENTING AUTHOR (IF DIFFERENT)

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Short-term measurements (5 min. sampling) of radon-222 and its decay products concentration, and also of the concomitant meteorological parameters have been performed on a waste-rock pile (Crouzet, Saxony) during the week 17-21 August 1994. As could be expected from measurements made directly above the source, the equilibrium factor is low (mean value at 0.5m-1.5m,0.13-0.16), while the daily radon concentration (152-136 $Bq.m^{-3}$) and the daily potential alpha energy concentration (0.122-0.136 $\mu J.m^{-3}$) are relatively high. The relationships binding these radiological parameters to the state of atmospheric stability has been investigated. The concentrations of radon and its daughters increase with the stability of the atmosphere. On the contrary, the equilibrium factor variations are not completely explained by the state of atmospheric stability. Other parameters such as wind velocity and dry deposition of radon decay products might be taken into account. The complexity of studying the outdoor equilibrium factor resides in the fact that, besides the necessity to integrate numerous explanatory phenomena, the equilibrium factor value above a finite area source is also influenced by the presence of radon from the regional background.