

# **RADON AIR POLLUTION IN URANIUM BIOGEOCHEMICAL AREAS OF THE TOWN OF MAILUU-SUU, KYRGYZ REPUBLIC**

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**Background and Aims:** To study the radon air pollution in uranium biogeochemical area and to search for possible ways to reduce air pollution.

**Materials and methods:** The present study was carried out in the town of Mailuu-Suu, Kyrgyzstan. There was an ore mining and processing enterprise in Mailuu-Suu that mined uranium between 1946 and 1966. Charcoal traps were used to detect radon concentration in the air.

**Results:** A total of 120 premises were examined. An increased radon concentration ( $>200 \text{ Bq/m}^3$ ) was revealed in 112 cases (85%). The results of examination of radon air concentration in the town of Mailuu-Suu were as follows:  $M = 511.23 \text{ Bq/m}^3$ ,  $\max = 3704.0 \text{ Bq/m}^3$ ,  $\min = 92.50 \text{ Bq/m}^3$ ,  $\sigma = 917.19 \text{ Bq/m}^3$ ,  $m = 290.04 \text{ Bq/m}^3$ ,  $P < 0,00$  and  $p \text{ Ci/l}$  values:  $\bullet = 12.23$ ;  $\bullet\bullet = 28.20$ ;  $\bullet \text{ in} = 4.6$ ;  $\bullet - 7.44$   $\bullet - 2.35$ ,  $\bullet < 0.001$ .

To reduce radon air pollution level in this area the following activities were suggested to local population: arrangement of green spaces (planting of trees and shrubs) in the area, use of sprinkler installation for garden watering, removal of uranium-containing boulders from the area, regular cleaning and ventilation of premises. On completion of the activities proposed the radon air concentration values were as follows:  $M = 704,39$ ,  $\max = 2714,0$ ,  $\min = 126,9 \text{ Bq/m}^3$ ,  $\sigma = 717,19 \text{ Bq/m}^3$ ,  $m = 260.04 \text{ Bq/m}^3$ ,  $P < 0,00$  and  $p \text{ Ci/l}$  values:  $\bullet = 10,23$ ;  $\bullet\bullet = 25.20$ ;  $\bullet \text{ in} = 3.6$ ;  $\bullet - 6.44$   $\bullet - 2.05$ ,  $\bullet < 0.001$ .

**Conclusions:** Thus, arrangement of green spaces (planting of trees and shrubs) in the area, use of sprinkler installation for garden watering, removal of uranium-containing boulders from the dumps, regular cleaning and ventilation of premises are of great help in reducing radon air pollution level under the conditions of the town of Mailuu-Suu.