STUDY OF RADON GAS DISTRIBUTION IN OIL AND GAS PRODUCING AREAS OF ABSHERON PENINSULA

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Problems of environment protection, solution of ecological problems and ensuring the safety of human life are always in the spotlight. Extraction and processing of oil and gas is the main and priority direction in the developing industry of Azerbaijan. It can be noted that one of the most stressed regions of Azerbaijan is the Absheron Peninsula from an environmental point of view taking into account that the development and exploitation of oil fields, processing of oil and oil products are the main pollutant of environment. Here, the pollution of environment occurs with the participation of radioactive isotopes of natural origin along with technogenic processes.

Natural radiation accompanies a person throughout his life. However, it has recently been known that the most dangerous source of natural radiation for human health is radioactive radon and products of its decay accumulated in residential and industrial buildings. Streams and concentrations of radon are unevenly distributed in them. It depends on the geological and geophysical nature of environment (an amount of uranium and thorium in the soil layer, rocks and groundwater), as well as on the construction of buildings, building materials and ventilation systems.

A person receives most of the radon radiation while breathing indoors. Therefore, the amount of radon is higher during winter months in buildings. The concentration of radon indoors is 5-8 times higher than outside in regions with a temperate climate.

Radioecological studies were carried out to determine the concentration of radon gas in administrative buildings on the territory of a number of oil and gas production enterprises of the Absheron Peninsula. The studies were carried out using track detectors (passive method). Therefore, 100 Gammadata brand radon track detectors were placed in the study areas. The exposure period of detectors was 1-1.5 months, after which the radiation dose received by them was calculated during this period.

The detectors were installed on the first floors of administrative buildings located on the territory of Balakhanyneft, Absheronneft, Bibiheybat and Taghiyev oil and gas production enterprises.

A specially prepared form was filled out while placing the detectors: dosimeter code, time of installation and removal, coordinates, as well as the type of construction and types of building material were indicated.

The determined concentration of radon was varied within the following limits: from 20 Bq/m3 to 140 Bq/m3: Balakhanyneft OGPD - 20-120 Bq/m3; Absheronneft OGPD - 21-105 Bq/m3, Bibiheybatneft OGPD - 24-95 Bq/m3 and Taghiyev OGPD - 21-140 Bq/m3.

The volumetric activity of radon is below the harmful level in the studied areas and does not pose a threat to human health considering that the admissible limit of radon concentration of Azerbaijan Republic is 200 Bq/m3.

The maps of distribution of radon volumetric activity were compiled for the above mentioned territories as a result of researches.

Proposals have also been developed to prevent the existing radon risk.