

ON THE MULTIPOINT RADON MONITORING SYSTEM IN THE MINE

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ABSTRACT

The multipoint continuous radon monitoring system which is based on the two filter method has been developed to estimate the radon concentration at four points of working area in uranium mine of Japan. The system consists of the detecting device which is distributed to the four working or interesting places of the mine, double shielded coaxial cable, analysing device located at the ground surface of mine and control device. The detecting device is divided to the following parts : seven liter of cylindrical vessel including the removal filter and daughter collecting filter (millipore AA) placed at the downstream side of the vessel, diaphragm pump adjusted to the flow rate of 7.7 l/min., shielded alpha particle detecting unit including the silicon surface barrier detector which is located at the face of daughter collecting filter, booster amplifier, bias voltage supply and power supply. About 400 m in length of double shielded coaxial cables are provided to make the electrical connection between the output of booster amplifier to input of linear amplifier of analysing device. Input pulses for the analysing device are divided to the four groups by the mixer router which is provided in the 1K multichannel pulse height analyser and are accumulated to each 256 channels group. The accumulated information is transferred to the memory of micro computer and then calculated for each 50 min. accumulating period. The conversion factor of the system is estimated as about 0.23 pCi/l for 10 counts per 50 min. collecting time of RaA channel.