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RADON DYNAMICS AND EQUIVALENT DOSE CALCULATIONS IN GROUNWATER AND AQUIFER MATERIALS AROUND MAIGANGA COAL MINES AND ENVIRONS, NORTH-EASTERN NIGERIA

ABSTRACT: Baseline study of occupational exposure to radon in groundwater, air and aquifer material around Maiganaga coal mine in Gombe State, northeastern Nigeria was conducted to ascertain their levels and safety of workers in the mines. It will also serve as a baseline data for monitoring as recommended by environmental and safety laws. Forty-eight (48) samples of water and aquifer materials were obtain from and around the coal mine and level of radon in water and exhalation from aquifer material was determined using electronic radon detection facility (RAD7). Highest values recorded for radon in water and aquifer material are 39,000Bq/m3 and 673Bq/m3. Highest elevation and static water levels are 488masl and 482.3m. Levels of radon in all the samples were found to be controlled largely by aquifer material type, depth to static water level and elevation. There were also levels of concern for high values of radon activity concentration in water in some well around the area studied

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