ELECTRONIC THESIS AND DISSERTATION UNSYIAH

TITLE

DISTRIBUSI UNSUR RADIONUKLIDA PRIMORDIAL DAN MEDAN MAGNETIK TOTAL DI SEKITAR INDUSTRI SEMEN LHOKNGA, ACEH BESAR

ABSTRACT

The distribution of radioactive elements thorium, uranium, potassium and the total magnetic field in rocks or soil around the cement industry at Lhoknga, Aceh Besar has been done. This study aimed to identify the primordial radionuclide distribution pattern elements and the total magnetic field, and investigate the influence of cement industry on the radioactive elements and magnetic field measurement results. In this work, the Gamma Ray Spectrometer GM-260 was used to measure the intensity of gamma ray, while the magnetometer G-856 proton precession magnetometer type (PPM) was used to observe the total magnetic field intensity. Measurements were taken at 52 points around the cement industry. As the results, the thorium, uranium, potassium distribution, and the total magnetic field has been create as a contour of maps. Thorium is the most radioactive element which found at the area. It was found on 32 points with a maximum value of 1.52 ppm. Uranium is obtained at 13 measuring points, with a maximum value of 0.46 ppm. While the Potassium is found only in two points, with the value are 0.04% and 0.09%. The values are very small, so it is not harmful to the environment. The maximum value of the total magnetic field is 681.80 nT. It means that the remanent magnetic field has the same direction as the induction magnetic field. So, the subsurface rock has a high magnetic values. The minimum value is -251.69nT, explained that the subsurface rocks are non-magnetic. Based on these analysis, indicated that there is no context between radioactive elements and magnetic field with the cement industry at the research area.