

ABSTRACT

THORIUM BEARING ROCK MODELLING USING GEOMAGNETIC METHOD IN “STALINGRAD” FIELD, MAMUJU, WEST SULAWESI

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Indonesia has a wealth of natural resources in the form of diverse valuable minerals, one of which is the radioactive Thorium mineral located in the Lava Adang complex, Mamuju Regency, West Sulawesi Province. The study was conducted to identify the distribution zone of lithology carrying thorium minerals based on the characteristics of magnetic anomalies and their susceptibility to rocks.

Geomagnetic method is an active geophysical method used to measure the distribution variation of lithology based on its magnetic intensity. Measurements were made for 2 months and 109 measurement points were taken with an area of 16 x 14 kilometers with a range of 2 kilometers in distance between tracks. Radiometry method is used to identify the distribution of lithology with a high radioactive level as a result of decay activity of high Thorium levels. Integration of this method is carried out to determine the distribution of uranium carrying lithology along with its associations.

The results of radiometric measurements which are then visualized with maps show a map of the rate of the dose rate of 1300 nSv / h, which is spread in the southeast in the form of accumulation in the study area. The distribution of magnetic values has varying variation values with the highest value of 1082.2 nT and the lowest value of -1326 , 1 nT. The distribution of magnetic anomaly values in the high dose rate map is at a low intensity value. Rock carriers of Thorium radioactive minerals are thought to originate from Adang Lava which has a lithology of extrusive igneous lithology and was controlled by the differentiation process of magma and Hydrothermal processes that make the radioactive minerals are only in certain spots on the Lava Adang.

Keyword : *Geomagnetic, Magma Diferentiation, Radioactivity*