conferenceseries.com

5th International Conference on

Geological and Environmental Sustainability

August 13-14, 2018 Bali, Indonesia

Exploration for magnetic minerals using geophysical logging techniques in the north western part of Bangladesh

Md Selim Reza and Mohammad Zohir Uddin Geological Survey of Bangladesh, Bangladesh

eophysical logging technique was conducted in a borehole in the north-western part of Bangladesh. The main objectives of this J study were to identify the subsurface lithology and the presence of magnetic minerals within the basement complex. In this survey, full waveform sonic, magnetic susceptibility and natural gamma logs were conducted up to the depth of 660 m. From sonic log, three distinct velocity zones were observed at depths ranging from 20 m to 81 m, 81 m to 360 m and 420 m to 660 m having the average velocity of 1600 m/s indicating unconsolidated sediment, 2500 m/s indicating hard, compact and matured sediments and 6300 m/s indicating basement complex, respectively. Some low velocity zones within the basement were identified as fractures/ fissures. Natural gamma log was carried out only in the basement complex. According to magnetic susceptibility log, broadly three important zones were identified which had good agreement with the natural gamma, sonic as well as geological logs. The zone at the depth from 460 m to 470 m had the average susceptibility value of 3445 CGS unit. The average natural gamma value and sonic velocity in this zone are 150 cps and 3000 m/s, respectively. The zone at the depth from 571 m to 598 m had the average susceptibility value of 5158 CGS unit with the average natural gamma value and sonic velocity are 160 cps and 6000 m/s, respectively. On the other hand, the zone at the depth from 598 m to 620 m had the average susceptibility value of 1998 CGS unit with the average natural gamma value and sonic velocity show 200 cps and 3000 m/s, respectively. From the interpretation of geophysical logs the 1st and 3rd zones within the basement complex are considered to be less significant whereas the 2nd zone is described as the most significant for magnetic minerals. Therefore, more drill holes are recommended on the anomalous body to delineate the extent, thickness and reserve of the magnetic body and further research are needed to determine the quality of mineral resources.

reza.geophysics@gmail.com

Notes: