

Endapan timah letakan merupakan tipe endapan timah penghasil timah terbesar di Indonesia. Pulau Bangka merupakan salah satu daerah dengan cadangan endapan timah letakan terbesar di Indonesia. Selain logam timah di pulau ini juga dijumpai mineral pembawa logam tanah jarang dan thorium. Secara administratif, penelitian berada di Desa Air Belo, Kecamatan Muntok, Kabupaten Bangka Barat, Provinsi Bangka Belitung. Tujuan dari penelitian ini adalah mengetahui keterdapatan mineral pembawa timah dan mineral ikutannya pada endapan letakan di lokasi penelitian serta kondisi geologi yang mempengaruhinya. Penelitian ini dilakukan dengan peninjauan lapangan pemetaan geologi dan pengambilan beberapa sampel yang terdiri dari 5 sampel *float* batuan, 4 sampel urat, dan 73 sampel endapan. Pada sampel *float* batuan diberlakukan analisis petrografi, sedangkan sampel urat diberlakukan analisis petrografi dan XRF portabel. Sampel endapan dilakukan analisis granulometri, XRF portabel, GCA (*Grain Counting Analysis*) dan petrografi. Berdasarkan hasil pemetaan lapangan diketahui bahwa lokasi penelitian tersusun oleh dua satuan geomorfologi yaitu satuan perbukitan intrusi dan satuan dataran banjir. Daerah penelitian juga tersusun dari dua satuan geologi, yaitu intrusi monzogranit dan endapan pasir kerikilan. Berdasarkan analisis *digital elevation model* (DEM) lokasi penelitian, diperoleh arah utama gaya pengontrol struktur geologi di daerah penelitian berarah Timur Laut-Barat Daya. Konsentrat endapan timah letakan residual di lokasi penelitian memiliki persentase kandungan mineral rata-rata kuarsa (53,39%), kasiterit (6,79%), monasit (3,06%), xenotim (1,27%), zirkon (1,13%) dan turmalin (9,68%). Sedangkan pada endapan timah letakan koluvial memiliki persentase kandungan mineral rata-rata kuarsa (52,24%), kasiterit (8,52%), monasit (2,85%), xenotim (1,14%), zirkon (1,23%) dan turmalin (8,49%). Mineral utama pembawa timah pada endapan timah letakan di lokasi penelitian adalah kasiterit, mineral utama pembawa LTJ (Logam Tanah Jarang) adalah monasit dan xenotim serta mineral utama pembawa thorium adalah monasit. Namun pada endapan timah letakan residual, turmalin juga berperan cukup besar dalam menyuplai LTJ di lokasi penelitian. Selain itu pada endapan timah letakan koluvial, diduga ada peran mineral lain yang cukup besar dalam menyuplai LTJ dan thorium selain monasit dan xenotim. Kadar rata-rata logam timah, total LTJ dan thorium pada endapan timah letakan residual secara berturut-turut adalah 71,76; 22,04 dan 56,05 ppm. Sedangkan kadar rata-rata logam timah, total LTJ dan thorium pada endapan timah letakan koluvial secara berturut-turut adalah 107,70; 17,90 dan 41,40 ppm. Endapan timah letakan residual dijumpai pada intrusi monzogranit, sedangkan endapan timah letakan koluvial dijumpai pada endapan pasir kerikilan. Endapan timah letakan residual dan koluvial dijumpai pada satuan geomorfologi perbukitan intrusi. Namun endapan timah letakan residual berkembang pada daerah dengan kelerengan yang relatif datar dan landai, sedangkan endapan timah letakan koluvial berkembang pada daerah dengan kelerengan cukup tinggi. Ukuran butir pada sedimen pembawa endapan timah letakan di lokasi penelitian berkisar dari pasir sedang sampai pasir sangat kasar, dengan dominasi pasir sangat kasar. Sortasi, baik pada endapan timah letakan residual maupun koluvial di lokasi penelitian bersortasi buruk. Sumber utama endapan timah letakan di lokasi penelitian adalah monzogranit, selain itu dijumpai urat turmalin dan urat kuarsa yang juga menjadi sumber endapan timah letakan di lokasi penelitian.

Kata Kunci: endapan letakan, mineral berat, timah, Air Belo, mineralisasi

ABSTRACT

The placer tin deposit is the largest type of tin deposit in Indonesia. Bangka Island is one of the areas with the largest tin deposits in Indonesia. Beside from tin metal, there are also minerals carrying rare earth elements and thorium. Administratively, the research was in Air Belo Village, Muntok District, West Bangka Regency, Bangka Belitung Province. The purpose of this study is to determine the presence of tin bearing minerals and associated minerals in the placer deposits at the research site and the geological conditions that influence them. This research is conducted by surveying the geological mapping field and taking several samples consisting of 5 rock float samples, 4 vein samples, and 73 sediment samples. Petrographic analysis is applied to rock float samples, while vein samples are subjected to petrographic analysis and portable XRF. The sediment samples are analyzed for granulometry, portable XRF, grain counting analysis and petrography. Based on the results of field mapping, it is known that the research location is composed of two geomorphological units, namely the intrusion hill unit and the floodplain unit. The research area is also composed of two geological units, namely monzogranite intrusion and gravel sand deposits. Based on the digital elevation model (DEM) analysis of the research location, the main direction of the geological structure controlling force in the research area is Northeast-Southwest trending. The residual placer tin deposit concentrate at the study site has an average percentage of mineral content of quartz (53.39%), cassiterite (6.79%), monazite (3.06%), xenotime (1.27%), zircon (1.13%) and tourmaline (9.68%). Whereas the colluvial placer tin deposit concentrate has an average percentage of mineral content of quartz (52.24%), cassiterite (8.52%), monazite (2.85%), xenotime (1.14%), zircon (1.23. %) and tourmaline (8.49%). The main minerals that carry tin in the placer tin deposits at the study site is cassiterite, the main minerals carrying rare earth element are monazite and xenotime and the main minerals carrying thorium is monazite. However, in the residual placer tin deposit, tourmaline also plays a significant role in supplying rare earth elements at the study site. In addition, in the colluvial placer tin deposit, it is suspected that there is a significant role of other minerals in supplying rare earth elements and thorium besides monazite and xenotime. The average content of tin, rare earth elements total and thorium in the residual placer tin deposit continuously are 71.76, 22.04 and 56.05 ppm. While in the colluvial placer tin deposit continuously are 107.70, 17.90 and 41.40 ppm. Residual placer tin deposit is found in monzogranite intrusion, while colluvial placer tin deposit is found in gravel sand deposits. Both residual and colluvial deposition of tin were found in the intrusion hill geomorphology unit. However, residual placer tin deposits develop in areas with relatively flat and gentle slopes, while colluvial placer tin deposits develop in areas with relatively high slopes. The grain size of the tin sediment carrying the location of the study ranges from moderate to very coarse sand, with the predominance of very coarse sand. Both the residual and colluvial placer tin deposit at the study site are poorly sorted. The main source of placer tin deposit in the study site is monzogranite. In addition to that, tourmaline veins and quartz veins are also found,. They also have the role to supply material to the tin placer deposit

Key Words: *placer deposit, heavy mineral, tin, Air Belo, mineralization*