

ABSTRAK

Penelitian tentang geologi, alterasi hidrotermal dan tipe mineralisasi timah primer ini berlokasi di salah satu blok konsesi PT. Timah Persero (Tbk) yang berada di Desa Paku, Air Semut, dan Payung, Kecamatan Payung, Bangka Selatan. Tujuan dari penelitian ini adalah untuk mengetahui kondisi geologi, jenis dan mineralogi alterasi, serta genesa dan tipe mineralisasi endapan timah primer yang ada di lokasi penelitian. Metode yang digunakan berupa pemetaan geologi yang mencakup pengamatan aspek morfologi, litologi, dan struktur geologi, serta pemetaan penyebaran zona alterasi. Sedangkan metode analisis yang digunakan berupa analisis petrografi, analisis mikroskopi bijih, analisis *X-Ray Diffraction* (XRD), serta analisis *X-Ray Fluorescence*.

Hasil penelitian menunjukkan bahwa satuan morfologi penyusun lokasi penelitian berupa satuan perbukitan tersilisifikasi, satuan perbukitan denudasional, dan satuan dataran fluvial. Litologi penyusun lokasi penelitian berupa satuan batupasir dan satuan endapan pasir kerakalan. Struktur geologi yang berkembang di lokasi penelitian memiliki tiga arah utama, yakni arah NNE-SSW, arah WNW-ESE yang membawa mineralisasi, dan arah ENE-WSW. Alterasi yang berkembang di lokasi penelitian terdiri dari zona alterasi silisifikasi dan zona alterasi argilisasi. Alterasi silisifikasi dicirikan dengan asosiasi mineral kuarsa dan ilit. Alterasi argilisasi dicirikan dengan melimpahnya mineral lempung seperti ilit, smektit, *dickite*, dan *halloysite*.

Mineralisasi di lokasi penelitian terpusat di sekitar Bukit Baji. Mineralisasi pada urat polimetalik merupakan tipe mineralisasi timah primer yang berkembang di lokasi penelitian. Urat polimetalik tersusun atas urat kuarsa yang membawa mineral kasiterit dan stanit yang berasosiasi dengan mineral logam lain berupa pirit dan hematit dengan kadar timah 0,068-0,081% Sn. Tipe mineralisasi timah lain yang ada di lokasi penelitian berupa mineralisasi pada satuan batubesi atau *gossan* yang merupakan hasil proses supergen yakni oksidasi dari urat polimetalik, yang mana terjadi pengayaan kadar Sn hingga 0,754-0,927% Sn. Mineralisasi timah pada satuan batubesi dibawa oleh mineral kasiterit yang berasosiasi dengan mineral besi oksida seperti hematit dan goethit.

Kata kunci: Mineralisasi timah primer, Bukit Baji, Bangka Selatan, Sn, urat polimetalik, batubesi.

ABSTRACT

The study on geological aspect, hydrothermal alteration and type of primary tin mineralization is located at one of PT. Timah Persero (Tbk) concession areas in Paku, Air Semut, and Payung villages, Payung district, South Bangka. The objectives of the study are to understand the geological aspects, mineralogy of alteration, and genesis of primary tin deposits in the research area. Methods that were used include geological mapping that includes morphological, lithology, and structural geology aspects, and also alteration zone mapping. Analytical methods that were used are petrography analysis, ore microscopy analysis, X-Ray Diffraction (XRD) analysis, and X-Ray Fluorescence (XRF) analysis.

The results of this research indicates that morphological units consist of silicified hills unit, undulating hills unit, and fluvial plain unit. Lithologies of research area consist of sandstone unit and gravely sand deposit unit. The geological structure that develops at the site of the study has three main directions, namely NNE-SSW, WNW-ESE direction that brought the mineralization, and the direction of ENE-WSW. Alteration that developed in study area consists of silicified and argillic alteration zones. Silicified alteration characterized by quartz and illite mineral association. Argillic alteration characterized by the abundance of clay minerals such as illite, smectite, dickite, and halloysite.

Mineralization at the study area centered around the Baji Hill. Mineralization on polymetallic veins is the mineralization type of primary tin deposits that develops in the sites. Polymetallic veins made up by quartz vein that consists of cassiterite and stannite associated with other opaque minerals such as pyrite and hematite with tin content from 0.068 to 0.081% Sn. Another tin mineralization type in the study area is mineralization on ironstone or gossan which formed by the oxidation as a supergene process of polymetallic veins, yield enrichment of tin content from 0.754 to 0.927% Sn. Tin mineralization on ironstone unit carried by mineral cassiterite associated with iron oxide minerals such as hematite and goethite.

Key words: Primary tin mineralization, Baji Hill, South Bangka, Sn, polymetallic veins, ironstone.