

ABSTRAK

GEOLOGI DAN ALTERASI ARGILIK PADA BATUAN SEDIMEN DI KAVLING X, DESA PENAGAN, MENDO BARAT, KABUPATEN BANGKA: IMPLIKASINYA TERHADAP KANDUNGAN UNSUR Sn

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Pulau Bangka merupakan salah satu penghasil timah utama di Indonesia, namun sebagian besar penelitian terdahulu berfokus pada zona granitik. Potensi batuan sedimen sebagai jalur fluida hidrotermal masih jarang dikaji. Penelitian eksploratif awal ini dilakukan di Kavling X, Desa Penagan, Mendo Barat, Kabupaten Bangka, untuk menganalisis kondisi geologi, jenis alterasi hidrotermal, sebaran kadar Sn, serta pengaruh struktur geologi terhadap zona alterasi pada batuan sedimen berupa batupasir dan breksi. Penelitian dibatasi pada pengamatan dan analisis batuan sedimen di Kavling X. Metode yang digunakan meliputi pemetaan geologi, deskripsi singkapan, analisis spektral dengan *Halo Analytical Spectral Devices* (ASD), dan analisis geokimia menggunakan *X-Ray Fluorescence* (XRF) *Portbale*. Litologi utama menunjukkan zona alterasi argilik (kaolinit–illit) dan silikifikasi. Data ASD mengidentifikasi puncak reflektansi kaolinit dan illit pada beberapa titik alterasi intensif, seperti LP-212 dan LP-49. Analisis XRF menunjukkan rata – rata kadar Sn 42,6 ppm tanpa ditemukannya mineral kasiterit di permukaan. Meskipun nilai ini tidak signifikan secara ekonomi, terdapat keterkaitan antara intensitas alterasi dan jalur struktur geologi. Keberadaan sesar mendatar dan kekar kuarsa mengindikasikan perannya sebagai jalur migrasi fluida hidrotermal. Luaran penelitian berupa peta geologi, peta sebaran zona alterasi, dan peta distribusi kadar Sn diharapkan menjadi acuan eksplorasi lanjutan di luar tubuh granit.

Kata kunci: geologi, alterasi argilik, hidrotermal, batupasir, breksi, Sn, ASD, XRF

ABSTRACT

GEOLOGY AND ARGILIC ALTERATION OF SEDIMENTARY ROCKS IN KAVLING X, PENAGAN VILLAGE, MENDO BARAT, BANGKA REGENCY: IMPLICATIONS FOR Tin (Sn) Content

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Bangka Island is one of the main tin-producing regions in Indonesia; however, most previous studies have focused on granitic zones. The potential of sedimentary rocks as pathways for hydrothermal fluids has rarely been examined. This preliminary exploratory study was conducted in Block X, Penagan Village, Mendo Barat District, Bangka Regency, to analyze the geological conditions, types of hydrothermal alteration, Sn content distribution, and the influence of geological structures on alteration zones in sedimentary rocks composed of sandstone and breccia. The study is limited to the observation and analysis of sedimentary rocks in Block X. Methods employed include geological mapping, outcrop description, spectral analysis using Halo Analytical Spectral Devices (ASD), and geochemical analysis using X-Ray Fluorescence (XRF) Portable. The main lithologies exhibit argillic (kaolinite–illite) and silicification alteration zones. ASD data identified characteristic kaolinite and illite reflectance peaks at several intense alteration points, such as LP-212 and LP-49. XRF analysis showed Sn contents mean 42,6 ppm, with no cassiterite minerals found at the surface. Although these values are not economically significant, they indicate a correlation between alteration intensity and geological structure pathways. The presence of strike-slip faults and quartz veins suggests their role as conduits for hydrothermal fluid migration. The research outputs include a geological map, an alteration zone distribution map, and an Sn content distribution map, which are expected to serve as a reference for further exploration beyond the granitic bodies.

Keywords: *geology, argillic alteration, hydrothermal, sandstone, breccia, Sn, ASD, XRF*