

**GEOLOGI, ALTERASI, DAN MINERALISASI TIMAH PRIMER
DAERAH RENGAS, DESA BENCAH, KECAMATAN
AIR GEGAS, KABUPATEN BANGKA SELATAN,
PROVINSI KEPULAUAN BANGKA BELITUNG**

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SARI

Penelitian ini dilaksanakan di Daerah Rengas, Desa Bencah, Kecamatan Air Gegas, Kabupaten Bangka Selatan, Provinsi Kepulauan Bangka Belitung. Daerah penelitian seluas 52 km² dibagi menjadi dua, yaitu daerah yang diakusisi dengan metode *grid* seluas 10 km² dan *scattered* seluas 42 km². *Soil sampling* menjadi metode utama yang digunakan pada penelitian ini, dan dipadukan dengan pemetaan litologi pada titik ditemukan singkapan. Stratigrafi daerah penelitian dibagi ke dalam tiga satuan: Batupasir Tanjunggenting (Trias Akhir), Syenogranit Klabat (Trias Akhir- Yura Awal), dan Endapan Alluvial (Holosen). Berdasarkan urutan pembentukannya, tegasan pembentuk struktur pada daerah penelitian dibagi menjadi dua: tegasan pra- mineralisasi (barat-timur), tegasan saat mineralisasi (barat laut-tenggara).

Sampel hasil penelitian dianalisis dengan XRD (untuk beberapa sampel terpilih) untuk mengidentifikasi mineral penciri alterasi dan XRF (untuk semua sampel) untuk mengidentifikasi kadar unsur (dalam ppm). Mineral alterasi dikelompokkan menjadi tiga himpunan: kuarsa ± turmalin ± muskovit ± serisit ± illit/illit-smektit (*greisen*), kuarsa + kaolinit + pirofilit (argilik lanjut), dan kuarsa + kaolinit ± illit ± montmorilonit ± dikit (argilik). Data kadar unsur dianalisis dengan metode, multivariat, univariat, dan geostatistika (*ordinary kriging*). Berdasarkan analisis multivariat unsur timah (Sn) tidak berkorelasi kuat dengan unsur apapun. Unsur As adalah unsur yang memiliki korelasi paling kuat dengan Sn.

Kadar unsur timah (Sn) pada daerah penelitian memiliki jangkauan mulai dari 0-1801 ppm, dan batasan kadar unsur timah yang dianggap bukan pencilan adalah 462 ppm. Rata-rata kadar unsur timah adalah 81.16 ppm (data mengandung pencilan) dan 137.75 ppm (data tanpa pencilan). Berdasarkan analisis geostatistik dengan metode *ordinary kriging* dapat diidentifikasi adanya tujuh zona yang masuk ke kategori kadar agak tinggi dengan luas keseluruhan 0.59 km², dan dua zona yang masuk ke kategori kadar tinggi dengan luas keseluruhan 0.24 km². Endapan timah pada daerah penelitian terbentuk dari batuan asal syenogranit tipe S dan batuan dinding batupasir. Timbal (Pb), seng (Zn), dan perak (Ag) menjadi unsur logam ikutan pada endapan timah di daerah penelitian. Thorium (Th) dan yttrium (Y) menjadi unsur logam tanah jarang yang juga menjadi ikutan endapan timah pada daerah penelitian. Persebaran endapan ini utamanya dikontrol oleh struktur geologi berarah barat laut – tenggara.

Kata Kunci: Timah primer, alterasi, *greisen*, mineralisasi, univariat, multivariat, geostatistika.

**GEOLOGY, ALTERATION, AND MINERALIZATION OF
PRIMARY TIN IN RENGAS AREA, DESA BENCAH,
AIR GEGAS DISTRICT, BANGKA SELATAN REGENCY,
KEPULAUAN BANGKA BELITUNG PROVINCE**

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ABSTRACT

This study was conducted in the Rengas Area, Bencah Village, Air Gegas District, South Bangka Regency, Kepulauan Bangka Belitung Province. The study area comprises 52 km², divided into two zones according to the data acquisition method: grid method (10 km²) and scattered method (42 km²). In this study, the data was acquired mainly using the soil sampling method, although standard rock mapping and identification were also applied if outcrops or rock floats were found. In this area, three rock units were found: Tanjunggenting Sandstone (Late Triassic), Klabat Syenogranite (Late Triassic-Early Jurassic), and Alluvial Sediments (Holocene). Based on the timing of formation, the structural framework was interpreted and divided into two units relative to mineralization: Pre-mineralization stress (east-west) and syn-mineralization (northwest-southeast).

X-Ray Diffraction (XRD) and X-Ray Fluorescence (XRF) methods were applied to identify the alteration of minerals and the element contents (in ppm) of the samples obtained from the field, respectively. Alteration minerals identified by XRD were divided into three groups: quartz ± tourmaline ± muscovite ± sericite ± illite/illite-smectite (greisen), quartz ± kaolinite + pyrophyllite (advanced argillic), and quartz + kaolinite ± illite ± montmorillonite ± dickite (argillic). Element contents data from XRF were analyzed using several statistical and geostatistical methods, including multivariate, univariate, and ordinary kriging geostatistical methods. Based on the multivariate analysis, Sn is not strongly correlated with any elements. Among all the elements, Sn-As is the most strongly correlated pair.

In this area, the tin (Sn) read ranges from 0 ppm to 1801 ppm, and if the data anomalies are ignored, the maximum Sn content is 462 ppm. The mean values are 81.16 ppm (outliers included) and 137.75 (outliers excluded). Seven semi-high-anomaly zones with a total area of 0.59 km² and two high-anomaly zones with a total area of 0.24 km² can be seen in the Sn content contour map, which was generated with ordinary Kriging geostatistical analysis. Type S syenogranite intrusion into the sandstone wall rock is interpreted as the precursor to the tin deposition. Some other metal elements that are associated with this deposit are lead (Pb), zinc (Zn), and silver (Ag). Some rare earth metals such as thorium (Th) and yttrium (Y) were also found in this area. Northwest-southeast structures mainly control the geographical extent of this deposit.

Keywords: *Primary tin, alteration, greisen, mineralization, univariate, multivariate, geostatistics.*