

SARI

Area Busa – Gunung Botak merupakan suatu daerah yang terletak di bagian tenggara dari lengan utara Pulau Sulawesi dan termasuk dalam distrik emas Bakan. Selain itu, area Busa – Camp Site juga dikenal memiliki karakteristik tipe endapan epitermal sulfidasi tinggi dengan mineralisasi yang dibawa oleh breksi hidrotermal. Tujuan dari penelitian ini yaitu membahas mengenai kajian geologi serta melakukan karakterisasi breksi hidrotermal untuk dapat memberikan gambaran dan penjelasan model tubuh breksi di daerah penelitian. Penelitian ini mengintegrasikan pemetaan lapangan dan pengamatan batuan inti (*core logging*) serta beberapa analisis laboratorium, seperti: petrografi, mineragrafi, *slab analysis*, ASD (*Analytical Spectral Device*), dan geokimia.

Hasil analisis dan olah data menghasilkan kesimpulan bahwa daerah penelitian tersusun oleh 4 satuan batuan, yaitu: satuan lava andesit (satuan tertua), diorit, tuf, dan breksi diatrem (satuan termuda). Adapun karakteristik breksi diatrem di daerah penelitian diklasifikasikan menjadi 5 fasies dan 2 sub-fasies breksi diatrem, yaitu fasies *jigsaw-fit* (JF) dengan sub-fasies tipe A (JF-A) dan tipe B (JF-B), *chaotic-clast supported* tipe 1 (CH-CS1), *chaotic-matrix supported* (CH-MS), *chaotic-clast supported* tipe 2 (CH-CS2), serta *crackle* (CR). Alterasi yang berkembang di daerah penelitian adalah alterasi silisifikasi (kuarsa ± alunit), argilik lanjut (kuarsa + alunit ± dikit), argilik (ilit + monmorilonit ± kaolinit), dan propilitik (epidot + klorit). Karakteristik mineralisasi di daerah penelitian adalah tipe mineralisasi oksidasi, *open space filling*, *disseminated ore*, dan urat kuarsa. Mineral bijih yang dijumpai di daerah penelitian yaitu pirit dan enargit. Di sisi lain, pembentukan breksi diatrem di daerah penelitian diawali dengan aktivitas tektonik yang diikuti dengan peningkatan aktivitas magmatik dan memicu erupsi freatomagmatik sehingga terbentuk fasies breksi diatrem JF, CH-CS1, dan CH-MS dengan mekanisme tektonik-freatomagmatik. Selanjutnya terjadi aktivitas alterasi hidrotermal dan terbentuk fasies breksi CR pada bagian dari tubuh breksi diatrem Busa – Camp Site melalui mekanisme tektonik-hidrotermal serta fasies CH-CS2 melalui mekanisme freatik-hidrotermal. Mineralisasi cenderung terjadi pada fasies JF, CH-CS1, CH-CS2, dan CR.

Kata kunci: geologi, breksi, mineralisasi, epitermal, distrik emas Bakan

ABSTRACT

The Busa – Gunung Botak area, located in the southeastern part of the northern arm of Sulawesi Island, is part of the Bakan gold district. Additionally, the Busa – Camp Site area is known for its high-sulfidation epithermal deposit characteristics, with mineralization carried by hydrothermal breccia. This study aims to discuss the geological characteristics and perform a detailed characterization of the hydrothermal breccia to provide a model and explanation of the breccia body in the study area. The research integrates field mapping, core logging, and various laboratory analyses, including petrography, mineragraphy, slab analysis, ASD (Analytical Spectral Device), and geochemistry.

The analysis results and data processing conclude that the study area is composed of four rock units: the andesite lava unit (the oldest unit), diorite, tuff, and diatreme breccia (the youngest unit). The diatreme breccias in the study area are classified into five diatreme breccia facies and two sub-facies: jigsaw-fit (JF) facies with type A (JF-A) and type B (JF-B) sub-facies, type 1 chaotic-clast supported (CH-CS1), chaotic-matrix supported (CH-MS), type 2 chaotic-clast supported (CH-CS2), and crackle (CR). Alterations in the study area include silicification (quartz ± alunite), advanced argillic (quartz + alunite ± dickite), argillic (illite + montmorillonite ± kaolinite), and propylitic (epidote + chlorite). The mineralization characteristics in the study area include oxidation type, open space filling, disseminated ore, and quartz veins. The ore minerals found include pyrite and enargite. The formation of diatreme breccia in the study area began with tectonic activity followed by increased magmatic activity, triggering phreatomagmatic eruptions and forming the JF, CH-CS1, and CH-MS diatreme breccia facies through tectonic-phreatomagmatic mechanisms. Subsequently, hydrothermal alteration occurred, forming the CR breccia facies in part of the Busa – Camp Site diatreme breccia body through tectonic-hydrothermal mechanisms, and the CH-CS2 facies through phreatic-hydrothermal mechanisms. Mineralization tends to occur in the JF, CH-CS1, CH-CS2, and CR facies.

Keywords: *geology, breccia, mineralization, epithermal, Bakan gold district*