

SARI

Daerah penelitian secara administratif lokasi penelitian berada dalam wilayah izin usaha pertambangan PT. Bumi Suksesindo, daerah Tujuh Bukit, Desa Sumberagung, Kecamatan Pesanggaran, Kabupaten Banyuwangi, Jawa Timur pada koordinat UTM zona 50S dengan X: 173450–174900 dan Y: 9045650–9047050. Penelitian ini bertujuan untuk mengetahui kondisi geologi, kontrol litologi breksi hidrovolkanik dan struktur geologi terhadap ketersediaan mineralisasi emas kadar tinggi pada area prospek Tumpangpitu dengan melakukan pemetaan geologi dan alterasi di daerah penelitian. Sejumlah analisis yang dilakukan dalam membantu melakukan interpretasi seperti analisis petrografi, analisis mineragrafi, analisis ASD, analisis *Aqua Regia*, dan analisis stereografis. Geomorfologi pada daerah penelitian tersusun dari dua bentuk asal antara lain bentuk asal struktural dan antropogenik. Bentuk asal struktural terdiri dari perbukitan struktural. Sementara bentuk asal antropogenik terdiri atas bentuk lahan bukaan tambang, *pit*, *hauling road*, *Sump* dan *waste dump*. Stratigrafi daerah penelitian tersusun atas tiga satuan litodetik batuan yang berurutan dari tua ke muda meliputi Satuan dasit Tumpangpitu (Pliosen awal), Satuan breksi freatomagmatik Tumpangpitu (Pliosen akhir) dan Satuan breksi hidrotermal Tumpangpitu (Pliosen akhir). Struktur geologi daerah penelitian terbentuk akibat tegasan yang dihasilkan dua sesar regional utama berarah barat-laut–tenggara sehingga menghasilkan sesar lokal yang dapat dikelompokkan menjadi tiga kelompok. Ketiga kelompok tersebut berupa struktur berarah relatif barat laut–tenggara (*R-shear/synthetic fault*), timur laut–barat daya (*R'-shear/Antithetic fault*) dan utara–selatan (*T-Fracture*). Ketiga sesar tersebut terbentuk akibat pola tegasan utama berarah utara–selatan. Zonasi alterasi yang berkembang di daerah penelitian terbagi menjadi lima zona yang masing-masing dicirikan oleh kehadiran mineral penyusunnya. Kelima zona tersebut berupa kuarsa ± alunit ± pirofillit ± mika (silisik), kuarsa ± alunit ± dikit (Argilik lanjut *Quartz-rich*), Kaolinit ± dikit ± alunit ± kuarsa (Argilik lanjut *clay-rich*), montmorilonit ± Kaolinit ± haloisit (Argilik), dan paragoniticillit ± montmorilonit ± klorit (Propillitik luar). Mineralisasi di daerah penelitian hadir dalam bentuk tubuh breksi, diseminasi, *infilling vuggy*, dan *infilling fracture* berupa mineral bijih sulfida dan oksida. Keberadaan breksi hidrovolkanik yang dimanifestasikan oleh keberadaan breksi freatomagmatik menjadi penting karena berperan sebagai *feeder* utama dari terbentuknya alterasi dan mineralisasi di daerah penelitian. Hal tersebut dikarenakan posisinya yang mengindikasikan berada pada *volcanic vent* sebagai jalur utama dalam kenaikan fluida. Kontrol struktur geologi memiliki peran vital karena zona rekahan tersebut dapat menjadi jalur sekaligus tempat ideal bagi terbentuknya mineralisasi, seperti fitur berupa *dilatational jogs* dan *extension* urat. Selain itu, struktur geologi berperan aktif dalam pemicu terbentuknya litologi breksi hidrotermal yang menjadi tubuh mineralisasi utama di daerah penelitian.

Kata Kunci: Alterasi, Breksi, Freatomagmatik, Hidrotermal, Hidrovolkanik, Mineralisasi, Struktur

ABSTRACT

Administratively, the research area is located in the mining business permit area of PT. Bumi Suksesindo, Tujuh Bukit, Sumberagung Village, Pesanggaran District, Banyuwangi Regency, East Java at coordinates X: 173450–174900 dan Y: 9045650–9047050. This research aims to determine the geological conditions, control of hydrovolcanic breccia and structural geology control on the occurrence of high grade goold mineralization in the Tumpangpitu area. A number of analyzes are carried out to help interpretations such as petrographic analysis, mineragraphic analysis, ASD analysis, Aqua Regia analysis, and stereographic analysis. Geomorphology in the study area is composed of two forms of origin, including structural form origin and anthropogenic form origin. The structural form origin consists of structural hills. Meanwhile, anthropogenic form origin consists of mine openings, PIT, hauling roads, sumps and waste dumps. The stratigraphy of the research area is composed of three lithodemic rocks units in sequence from old to young including the Tumpangpitu dacite unit (early Pliocene), the Tumpangpitu phreatomagmatic breccia unit (late Pliocene) and the Tumpangpitu hydrothermal breccia unit (late Pliocene). The Structure geology of the research area was formed due to stresses produced by two main regional faults trending northwest–southeast, resulting in local faults which can be grouped into three groups. These three groups consist of structures trending relatively northwest–southeast (R-shear/synthetic fault), northeast–southwest (R'-shear/Antithetic fault) and north–south (T-Fracture). These three faults were formed due to the main stress pattern trending north–south. The alteration zoning that develops in the research area is divided into five zones, each of which is characterized by the presence of its constituent minerals. The five zones are quartz ± alunite ± pyrophyllite ± mica (silicic), quartz ± alunite ± dictite (advanced quartz-rich argillic), Kaolinite ± dictite ± alunite ± quartz (advanced clay-rich argillic), montmorillonite ± Kaolinite ± halloysite (argillic), and paragoniticillite ± montmorillonite ± chlorite (outer propylitic). Mineralization in the study area is present in the form of breccia bodies, dissemination, vuggy infilling, and infilling fractures in the form of sulfide and oxide ore minerals. The presence of hydrovolcanic breccia, which is manifested by the presence of phreatomagmatic breccia, is important because it acts as the main feeder for the formation of alteration and mineralization in the study area. This is because its position indicates it is in a volcanic vent as the main pathway for fluid rises. The structure geology control has a vital role because these fracture zones can be pathway and ideal places for the formation of mineralization, such as features in the form of dilatational jogs and extension veins. In addition, geological structures play an active role in triggering the formation of hydrothermal breccia which is the main body of mineralization in the research area.

Keywords: Alteration, Breccia, Hydrothermal, Hydrovolcanic, Mineralization, Phreatomagmatic, Structure