IDENTIFIKASI TIPE URAT DAN IMPLIKASINYA TERHADAP VARIASI KADAR TEMBAGA-EMAS ENDAPAN PORFIRI PROSPEK "X" DISTRIK TUJUH BUKIT, KABUPATEN BANYUWANGI, PROVINSI JAWA TIMUR

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SARI

Prospek"X" merupakan bagian dari Distrik Tujuh Bukit, Banyuwangi, Jawa Timur, dengan sistem mineralisasi porfiri Au-Cu, dicirikan dengan kehadiran berbagai tipe urat porfiri yang mengindikasikan korelasi positif terhadap kelimpahan kadar logam berharga. Studi paragenesis dan identifikasi tipe urat perlu dilakukan untuk mendelineasikan zona *High Grade Ore* yang cenderung berkorelasi dengan dominasi tipe dan intensitas urat porfiri tertentu. Identifikasi komprehensif pada enam lubang pemboran didukung beberapa analisis penelitian, yaitu geokimia kadar Au dan Cu, suseptibilitas magnetit, SWIR & VNIR *spectroscopy* (menggunakan ASD Terraspec4), maupun petrografi dan mikroskop bijih. Prospek ini tersusun atas litologi andesit, dasit 1, mikrodiorit, tonalit porfiri 1, tonalit porfiri 2, diorit porfiri, dasit 2, dan breksi freeatomagmatik. Prospek ini juga dipengaruhi oleh 6 zona alterasi hidrothermal, yaitu zona potasik (magnetit–klorit±hematit±biotit), zona propilitik (klorit–kalsit±epidot±magnetit), zona SCC/ *Sericite-Chlorite-Clay* (serisit–klorit–ilit/montmorilonit–kuarsa±magnetit/hematit), zona filik (kuarsa–serisit/ilit±pirit± klorit), zona argilik lanjut (pirofilit–kaolinit±dikit±diaspor), dan zona argilik (montmorilonit–ilit–kaolinit/haloisit). Terdapat kelompok urat berdasarkan fase mineralisasi sistem porfiri, yaitu urat porfiri (tipe M, tipe A, tipe AB, tipe B, tipe C, dan tipe D) dan urat nonporfiri (urat hematit, urat kalsit, dan urat anhidrit). Kelimpahan kadar emas dan tembaga pada suatu interval batuan dipengaruhi oleh dominasi tipe urat A (urat kuarsa *irregular*, diskontinu, dan tipis) dengan kadar rata-rata mencapai 0,34 ppm Au dan 0,22% Cu. Sementara itu, zona kelimpahan kadar emas dan tembaga tertinggi Prospek "X" mencapai 1,63 ppm Au dan 4,4% Cu yang berasosiasi kuat dengan intensitas tinggi (≈10% volume batuan) urat porfiri tipe A pada litologi tonalit porfiri 1 dan zona alterasi potasik yang minim kehadiran urat nonporfiri. Berdasarkan ini, dibuktikan bahwa urat porfiri sangat mempengaruhi kelimpahan kadar emas dan tembaga daerah penelitian.

Kata Kunci: urat**,** tipe urat porfiri, kadar Au&Cu, porfiri Au-Cu, Distrik Tujuh Bukit

IDENTIFICATION OF VEIN TYPE AND THEIR IMPLICATIONS ON COPPER-GOLD GRADE VARIATIONS OF PORPHYRY DEPOSITS AT PROSPECT "X", TUJUH BUKIT DISTRICT, BANYUWANGI REGENCY, EAST JAVA PROVINCE

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ABSTRACT

Prospect "X" is a part of the Tujuh Bukit District, Banyuwangi, East Java, with a porphyry Au-Cu mineralization system, characterized by various types of porphyry veins that indicate a positive correlation to precious metal content. A paragenetic study and vein type classification were conducted to elucidate the spatial distribution of high-grade ore zones, which tend to correlate with the domination of porphyry vein types and intensities. The study is based on six drill holes and supported by comprehensive analytical methods, including Au and Cu geochemistry, magnetic susceptibility, SWIR and VNIR spectroscopy (ASD Terraspec4), as well as petrographic and ore microscopy observations. This prospect has a lithological sequence consisting of andesite, dacite 1, microdiorite, tonalite porphyry 1, tonalite porphyry 2, diorite porphyry, dacite 2, and phreatomagmatic breccia. This pospect has also influenced by six main hydrothermal alteration zones including: potassic zone (magnetite–chlorite±hematite±biotite), propylitic zone (chlorite–calcite±epidote ±magnetite), SCC/sericite-chlorite-clay zone (sericite–chlorite–illite/montmorillonite–quartz±magnetite/hematite), phyllic zone (quartz–sericite/illite ±pyrite±chlorite), advanced argillic zone (pyrophyllite–kaolinite±dickite±diaspore), and argillic zone (montmorillonite –illite–kaolinite/halloysite). The variation of the vein is grouped into two major assemblages based on the porphyry mineralization stage: porphyry veins (M type, A type, AB type, B type, C type, and D type) and non-porphyry veins (hematite vein, calcite vein, and anhydrite vein). Among these, Type A veins—characterized by thin, irregular, and discontinuous quartz vein textures—have the strongest control on mineralization with the average grades of 0.34 ppm Au and 0.22% Cu. The highest-grade mineralization recorded—1.63 ppm Au and 4.4% Cu—is hosted by tonalite porphyry 1 associated with high-intensity type A (≈10 vol%) in potassic alteration, where non-porphyry veins are rare. These results emphasize the significant influence of porphyry veins on the distribution of Cu and Au grades at Prospect "X".

Keyword: vein, porphyry vein type, Au&Cu grades, porphyry Au-Cu, Tujuh Bukit District