

**GEOLOGI DAN ANALISIS HUBUNGAN KADAR UNSUR
LOGAM BERDASARKAN ASPEK RASIO UNSUR PADA
ENDAPAN EPITERMAL SULFIDASI MENENGAH
LAPANGAN “SAKTI”, KABUPATEN SUMBAWA BARAT
NUSA TENGGARA BARAT**

SARI

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Daerah penelitian berada di kawasan PT. Sumbawa Barat Mineral, Kabupaten Sumbawa Barat, Nusa Tenggara Barat. Penelitian ini bertujuan untuk mengetahui hubungan antara unsur logam dengan kondisi geologi dan alterasi serta hubungan antar unsur logam itu sendiri menggunakan analisis korelasi rasio unsur. Metode Penelitian yang dilakukan dalam penelitian ini terdiri atas studi pustaka, pengambilan data geologi permukaan, analisis dan pengolahan data menggunakan Petrografi, Mineragrafi, XRD (*X-Ray Diffraction*), XRF (*X-Ray Fluorescence*), dan studi kasus menggunakan analisis statistik rasio unsur.

Pola pengaliran pada daerah penelitian terbagi atas pola pengaliran Trellis (TRL), pola pengaliran Subtrellis (STR), dan pola pengaliran Subdendritik (SDN) yang terbentuk pada lima macam bentuk lahan geomorfologi berupa Bentuk lahan Lereng Struktural (S1), Bentuk lahan Lembah Struktural (S2), Bentuk lahan Perbukitan Karst (K1), Bentuk lahan Dataran Alluvial (F1), Bentuk lahan Tubuh Sungai (F2).

Stratigrafi pada daerah penelitian dari tua ke muda tersusun oleh Satuan breksituf Jereweh berumur Miosen Awal - Miosen Tengah, Satuan batugamping Jereweh berumur Miosen Akhir - Pliosen, dan Satuan Endapan Aluvial berumur Kuartar.

Struktur geologi daerah penelitian terdiri atas sesar mendatar yang terbagi atas empat jenis yang didasarkan pada orientasi dan arah pergerakannya, yakni Sesar Mendatar Kanan Orde 1 (barat laut - tenggara), Sesar Mendatar Kiri Orde 1 (Timur Laut - Barat Daya), Sesar Mendatar Kanan Orde 2 (Barat Barat Laut - Timur Tenggara dan Utara Timur Laut - Selatan Barat Daya), Sesar Mendatar Kiri Orde 2 (Barat Barat Daya - Timur Timur Laut dan Utara Barat Laut - Selatan Tenggara) dan kekar yang terbentuk pada sistem *dilatational jogs*.

Alterasi yang berkembang di daerah penelitian terbagi menjadi Alterasi Silisik (Kuarsa), Alterasi Argilik Tingkat Lanjut (Kuarsa + Ilit + Kaolinit + Pirofilit), Alterasi Argilik (Kaolin + Ilit + Kuarsa ± Montmormilonit), Alterasi Propilitik (Klorit + Smektit + Kuarsa) dengan mineralisasi pada sistem urat berekstur *Colloform*, *Crustiform*, Pengisian Kuarsa, *Dogteeth*, Kuarsa Kalsedonik, Kuarsa Masif, Kuarsa Kristalin, Mozaik, dan Sakaroidal berasosiasi dengan struktur kekar-kekar tarik pada sistem *dilatational jogs* dengan mineral bijih berupa Pirit (FeS₂), Kalkopirit (CuFeS₂), Galena (Pbs), Sfalerit ((Zn,Fe)S), Kalkosit (Cu₂S), Kovelit (CuS).

Pengkayaan unsur logam pada daerah penelitian memiliki asosiasi dengan litologi dan alterasi tertentu, dimana logam berharga (*precious metal*) berupa Cu, Au, dan Ag cenderung terkayakan pada litologi permeabel pada Satuan breksi-tuf Jereweh dengan kadar tinggi cenderung berasosiasi pada alterasi silisik. Logam dasar (*base metal*) juga paling tinggi terkayakan pada jenis litologi dan alterasi yang sama seperti logam berharga, namun juga ditemukan pengkayaan yang hampir rata pada litologi batugamping fragmen koral dan alterasi-alterasi lain yang terbentuk.

Hubungan antar unsur logam pada daerah penelitian, meliputi unsur Au memiliki korelasi negatif dengan unsur Cu, Ag, dan Pb, serta memiliki korelasi positif dengan unsur Zn. Unsur Cu memiliki korelasi negatif dengan unsur Ag, serta memiliki korelasi positif dengan unsur Pb dan Zn. Unsur Ag memiliki korelasi positif dengan unsur Pb, serta memiliki korelasi negatif dengan unsur Zn. Unsur Pb memiliki korelasi negatif dengan unsur Zn.

Kata Kunci : Alterasi, Epitermal Sulfidasi Menengah, Geologi, Mineralisasi, Rasio Unsur

**GEOLOGY AND ANALYSIS OF RELATIONSHIPS BASED ON
ASPECTS OF ELEMENT RATIO IN EPITHERMAL
INTERMEDIATE SULPHIDATION DEPOSITS “SAKTI
FIELD”, SUMBAWA REGENCY, WEST NUSA TENGGARA**

ABSTRACT
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The research area is in the area of PT Sumbawa Barat Mineral, West Sumbawa Regency, West Nusa Tenggara. This study aims to determine the relationship between metal elements with geological conditions and alteration and the relationship between the metal elements themselves using element ratio correlation analysis. The research method used in this study consisted of a literature study, surface geology data collection, data analysis and processing using Petrography, Mineragraphy, XRD (X-Ray Diffraction), XRF (X-Ray Fluorescence), and case studies using statistical analysis of element ratios.

Drainage patterns in the study area are divided into Trellis drainage patterns (TRL), Subtrellis drainage patterns (STR), and Subdendritic drainage patterns (SDN) which are formed in five types of geomorphological landforms in the form of Structural Slope Landforms (S1), Structural Valley Landforms (S2), Karst Hills Landform (K1), Alluvial Plain Landform (F1), River Body Landform (F2).

The stratigraphy in the study area from old to young is composed of the Jereweh breccia-tuff Unit of Early Miocene - Middle Miocene age, the Jereweh limestone unit of Late Miocene - Pliocene age, and the Quaternary age Alluvial Deposit Unit.

The geological structure of the study area consists of horizontal faults which are divided into four types based on their orientation and direction of movement, namely Order 1 Right Slip Fault (northwest-southeast), Order 1 Left Slip Fault (Northeast - Southwest), Right Slip Fault Order 2 (West Northwest - East Southeast and North Northeast - South West Southwest), Order 2nd Left Slip Fault (West Southwest - East Northeast and North Northwest - South East) and fractures formed in the dilatational jogs system.

The Alteration that develops in the study area is divided into Silicic Alteration (Quartz), Advanced Argillic Alteration (Quartz + Illite + Kaolinite + Pyrophyllite), Argillic Alteration (Kaolin + Illite + Quartz ± Montmormilonite), Propylitic Alteration (Chlorite + Smectite + Quartz) with mineralization in colloform, crustiform, quartz filling, dogteeth, chalcedonic quartz, massive quartz, crystalline quartz, mosaic, and saccharoidal textures associated with tension joint structures in the dilatational jogs system with ore minerals in the form of pyrite (FeS₂), chalcopyrite (CuFeS₂), Galena (Pbs), Sphalerite ((Zn,Fe)S), Chalcocite (Cu₂S), Covelite (CuS).

The enrichment of metal elements in the study area is associated with certain lithology and alteration, where precious metals in the form of Cu, Au, and Ag tend to be enriched in permeable lithology in breccia-tuff unit with high grades tend to be associated with silicic alteration. The base metal is also the highest enriched in the same lithology and alteration types as the precious metals. Still, an almost uniform enrichment is also found in the coralline limestone and other alterations that are formed.

The relationship between metal elements in the study area, including the element Au, has a negative correlation with the elements Cu, Ag, and Pb, and has a positive correlation with the element Zn. The Cu element has a negative correlation with the Ag element, and has a positive correlation with the Pb and Zn elements. The Ag element has a positive correlation with the Pb element, and has a negative correlation with the Zn element. Pb element has a negative correlation with Zn element.

Keywords : *Alteration, Epithermal Sulfidation Intermediate, Geology, Mineralization, Element Ratio.*