ANALISIS PENGARUH GEOMORFOLOGI TERHADAP POLA DISTRIBUSI UNSUR NIKEL DAN BESI PADA ENDAPAN NIKEL LATERIT PT. ANTAM Tbk KABUPATEN HALMAHERA TIMUR

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ABSTRAK

Morfologi merupakan salah satu faktor yang mempengaruhi sirkulasi air hujan yang jatuh ke permukaan tanah. Keadaan morfologi daerah setempat mempengaruhi proses pelarutan suatu unsur mobile dan immobile dalam batuan ultramafik untuk membentuk endapan nikel laterit. Pulau Pakal wilayahnya didominasi oleh Kompleks Ultramafik, memiliki potensi endapan nikel laterit dengan kandungan unsur nikel (Ni) dan besi (Fe) yang bervariasi. Penelitian dilakukan pada PT. Aneka Tambang (PT. ANTAM) Tbk. UPBN Malut yang terletak di Desa Buli, Kecamatan Maba, Kabupaten Halmahera Timur, Provinsi Maluku Utara, dimana fokus pengambilan data primer diperoleh di Site Pulau Pakal Front Subaim dan Lokasi Sirtu Utara. Dalam penelitian ini menggunakan metode kuantitatif yaitu dengan pengamatan secara langsung dan kemudian melakukan upaya percobaan untuk mengetahui distribusi penyebaran unsur nikel (Ni) dan besi (Fe) berdasarkan kondisi morfologi pada lokasi penelitian.Pola distribusi pada kandungan nikel secara horizontal di lokasi penelitian dengan morfologi landai yang memiliki rata – rata sebaran unsur Ni pada front subaim zona limonit terluas sebesar 0,66 – 2,23% dengan ketebalan zona limonit 1 – 17 meter. Sedangkan pada zona saprolit kadar rata – rata dengan sebaran kadar unsur Ni terluas sebesar 1,43 – 3,22%, dengan tebal terluas 2 - 26 meter. Adapun pada zona bedrock dengan Kandungan unsur Ni 0,38 – 0,56% dengan ketebalan 1 – 10 meter. Pada Kandungan nikel dengan morfologi curam dengan Kandungan Ni pada zona limonit sebesar 1,05 – 1,77% dengan kedalaman 1 – 8 meter dan zona saprolit dengan Kandungan Ni 1,05 – 2,06 dengan ketebalan 1 – 8 meter. Adapun pada zona bedrock dengan kadar 0,38 – 0,89% dengan kedalaman 5 – 15 meter. Pola distribusi kandungan besi pada nikel laterit secara horizontal di lokasi penelitian yang

memiliki rata – rata sebaran unsur Fe pada morfologi landai zona limonit terluas sebesar antara 29,55 – 45,6% sedangkan kandunga besi (Fe) pada zona saprolit berada di antara Fe 7,65 – 32,43% dengan ketebalan 2 – 26 meter. Sedangkan pada morfologi curam dengan zona limonit kadar rata – rata dengan sebaran kadar unsur Fe 30 – 38% dan pada zona saprolite dengan Kandungan 19, 25 – 27,77 ketebalan 15 meter.

Kata Kunci: **Geomorfologi, nikel, besi, limonit, saprolit, bedrock, PT.Aneka Tambang Tbk.**

ANALYSIS OF THE EFFECT OF GEOMORPHOLOGY ON DISTRIBUTION PATTERNS NICKEL AND IRON ELEMENTS IN NICKEL LATERITE DEPOSITS PT. ANTAM Tbk EAST HALMAHERA DISTRICT

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Abstract

Morphology is one of the factors that influences the circulation of rainwater that falls to the ground surface. The morphological conditions of the local area influence the dissolution process of mobile and immobile elements in ultramafic rocks to form laterite nickel deposits. The area of Pakal Island is dominated by the Ultramafic Complex, which has the potential for laterite nickel deposits with varying nickel (Ni) and iron (Fe) content. Research was conducted at PT. Aneka Tambang (PT. ANTAM) Tbk. North Maluku UPBN is located in Buli Village, Maba District, East Halmahera Regency, North Maluku Province, where the focus of primary data collection was obtained at the Pakal Front Subaim Island Site and the North Sirtu Location. This research uses a quantitative method, namely by direct observation and then carrying out experimental efforts to determine the distribution of the elements nickel (Ni) and iron (Fe) based on the morphological conditions at the research location. The horizontal distribution pattern of nickel content at the research location with a sloping morphology which has an average distribution of the Ni element in the widest subaim front of the limonite zone of 0.66 - 2.23% with a limonite zone thickness of 1 - 17 meters. Meanwhile, in the saprolite zone, the average content with the widest distribution of Ni elements is 1.43 - 3.22%, with the widest thickness being 2 - 26 meters. Meanwhile, the bedrock zone has a Ni element content of 0.38 – 0.56% with a thickness of 1 – 10 meters. The nickel content has a steep morphology with a Ni content in the limonite zone of 1.05 - 1.77% with a depth of 1 - 8 meters and the saprolite zone with a Ni content of 1.05 - 2.06 with a thickness of 1 - 8 meters. Meanwhile, the bedrock zone has a content of 0.38 – 0.89% with a depth of 5 – 15 meters. The horizontal distribution pattern of iron content in nickel laterite at the research location has an average distribution of Fe elements in the

widest sloping morphology of the limonite zone of between 29.55 - 45.6%, while the iron (Fe) content in the saprolite zone is between Fe 7 .65 – 32.43% with a thickness of 2 – 26 meters. Meanwhile, in the steep morphology, the limonite zone has an average content with a Fe content distribution of 30 - 38% and in the saprolite zone with a content of 19, 25 - 27.77, the thickness is 15 meters.

Keywords: Geomorphology, nickel, iron, limonite, saprolite, bedrock, PT. Aneka Tambang Tbk.