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Studi Geologi dan Zonasi Alterasi Dekalsifikasi di Formasi Waripi pada Cebakan DMLZ Level 2600, Distrik Ertsberg, Papua.

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Stratigrafi *Deep Mill Level Zone* (DMLZ) dengan lokasi daerah penelitian pada level 2600 mdpl merupakan endapan skarn yang terdiri atas sedimen silisiklastik dan karbonat pada Grup Kembelangan dan Grup New Guinea. Daerah penelitian mengalami alterasi dekalsifikasi yang merupakan hilangnya komponen karbonat (kalsit dan dolomit) pada batuan dan membuat kondisinya menjadi rapuh dan kehilangan volume secara signifikan. Penelitian bertujuan untuk menentukan unit stratigrafi yang paling dominan mengalami alterasi dekalsifikasi, menentukan jenis fluida yang mengakibatkan terjadinya alterasi dekalsifikasi, dan korelasi distribusi zona dekalsifikasi dengan struktur daerah penelitian. Metode dalam penelitian antara lain pengamatan deskriptif di delapan sumur pemboran (pendataan batuan inti dan kondisi inti bor), analisis petrografi, dan analisis *Near Infra Red* (NIR). Data NIR memberikan spektrum panjang gelombang khususnya pada mineral lempung yang menyebabkan terjadinya dekalsifikasi dan nilai kristalinitas kaolinit pada kelompok mineral *phyllosilicates* untuk mengetahui jenis fluida yang mendistribusi daerah penelitian. Unit stratigrafi terdiri dari Kkel (*Calcareous Shale*), Kkeh (*Shalestone*), TW1 (*Limestone*), TW2 (*Dolostone*), TW3 (*Quartz Sandstone*), TW4 (*Dolostone-Anhydrite-Sandy Dolostone*), TW5 (*Siltstone*), TW6 (*Dolostone-Anhydrite-Sandy Dolostone*), TW7 (*Calcareous Sandstone*), TW8 (*Sandy Dolostone*), dan Te (*Diorite Ertsberg*). Intensitas dekalsifikasi terbagi menjadi dekalsifikasi rendah, dekalsifikasi sedang, dan dekalsifikasi tinggi, dimana dekalsifikasi terdistribusi dengan baik di unit TW2, TW4, dan TW6. Jenis fluida yang mendominasi adalah fluida meteorik dengan distribusinya di unit TW2, TW4, dan TW6. Kemudian struktur memiliki peranan penting dalam terjadinya dekalsifikasi. Berdasarkan hasil penelitian dapat disimpulkan bahwa alterasi dekalsifikasi mengakibatkan hilangnya CaCO_3 dalam karbonat, peningkatan porositas dan permeabilitas, kondisi menjadi rapuh karena hilangnya volume dalam batuan, serta terdistribusi dengan baik di kontak antar lapisan litologi.

Kata Kunci: *Deep Mill Level Zone* (DMLZ), skarn, dekalsifikasi, fluida meteorik.

ABSTRACT

Geological Study and Decalcificated Alteration Zonation in Waripi Formation at DMLZ Deposits Level 2600, Ertsberg District, Papua.

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Deep Mill Level Zone (DMLZ) stratigraphy with research area location at 2600 masl level is a skarn deposit consisting of siliciclastic sediments and carbonates in the Twin Group and New Guinea Group. The research area undergo decalcification alterations that were the loss of carbonate (calcite and dolomite) components in rocks and made the condition fragile and significantly lost volume. Research aims to determine the most dominant stratigraphic units undergo decalcification alterations, determine the fluid type resulting in decalcification alteration, and correlation of decalcification zone distribution with research area structure. Methods in research include descriptive observations in eight drilling wells (core rock data and core drill conditions), petrographic analysis, and Near Infra Red (NIR) analysis. NIR data provide wavelength spectrums particularly on clay minerals that cause decalcification and crystallinity value of kaolinite in mineral groups of phyllosilicates to find out the type of fluid that distributes the research areas. Stratigraphic units consist of Kkel (Calcareous Shale), Kkeh (Shalestone), TW1 (Limestone), TW2 (Dolostone), TW3 (Quartz Sandstone), TW4 (Dolostone-Anhydrite-Sandy Dolostone), TW5 (Siltstone), TW6 (Dolostone-Anhydrite-Sandy Dolostone), TW7 (Calcareous Sandstone), TW8 (Sandy Dolostone), and Te (Diorite Ertsberg). The intensity of decalcification is divided into low decalcification, moderate decalcification, and high decalcification, whereby decalcification is well-detrified in TW2, TW4, and TW6 units. The dominating fluid type is meteoric fluid with its distribution in TW2, TW4, and TW6 units. Later structures had an important role in the occurrence of decalcification. Based on the results of the study it can be concluded that alterations of decalcification resulted in the loss of CaCO_3 in carbonate, increased porosity and permeability, conditions became fragile due to loss of volume in rocks, and well distributed in contact between lithological layers.

Keyword: Deep Mill Level Zone (DMLZ), skarn, decalcification, meteoric fluid.