ABSTRAK

PERBANDINGAN FORMULA *VSHALE* BERBASIS GEOFISIKA *WELL LOGGING* DAN DATA CORING DI DESA TEPOK, KEC. LOA JANAN, KAB. KUTAI KARTANEGARA

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Formula untuk menentukan *vshale* sudah muncul sejak akhir 1960an. Meskipun formula *vshale* sudah dirumuskan sejak tahun 1969, namun sampai saat ini belum ada penelitian yang mencoba membandingkan antara formula *vshale* yang satu dengan yang lain sehingga menyebabkan kerancuan dalam menentukan formula *vshale* yang dipakai utamanya di daerah penelitian.

Metode yang dipakai adalah geofisika *well logging* yaitu log gamma ray untuk menghitung nilai vshale dengan beberapa formula. Nilai vshale yang dihasilkan dianalisis berdasarkan ketebalan dan perhitungan *k-nearest neighbor*. Hasil analisi divalidasi dengan data lapangan berupa data logging dan data coring.

Berdasarkan analisis perbandingan formula *vshale*, formula Larionov memiliki parameter yang paling lengkap dibandingkan dengan formula lainnya. Berdasarkan perbandingan *vshale* untuk menentukan batas dan ketebalan lapisan batubara di daerah penelitian, formula *Larionov (tertiary rock)* memiliki selisih ketebalan dengan data coring paling kecil yaitu sebesar 1 cm. Berdasarkan penampang bawah permukaan dan Model 3D hasil perhitungan *k-nearest neighbor* di daerah penelitian, pada penampang menggunakan formula *linier, Larionov (older rock), steiber dan clavier* terdapat ketidaksesuaian batas lapisan pada sumur 5 dan keterdapatan litologi pada sumur 9. Pada penampang dengan menggunakan formula *Larionov (tertiary rock)* memiliki kesesuaian dengan data coring dan logging terkait batas lapisan batuan dan kesesuaian litologi.

Kata kunci: Formula *vshale*, *Well logging*, Data coring

ABSTRACT

COMPARISON OF VSHALE FORMULA BASED ON GEOPHYSICAL WELL LOGGING AND CORING DATA IN THE DESA TEPOK, KEC. LOA JANAN, KAB. KUTAI KARTANEGARA

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Formulas for determining vshale have appeared since the late 1960s. Although the vshale formula has been formulated since 1969, until now there has been no research that has tried to compare one vshale formula to another, confusing in determining the vshale formula to be used primarily in the study area.

The method used is geophysical well logging, namely gamma ray logs to calculate vshale values with several formulas. The resulting vshale values are analyzed based on thickness and k-nearest neighbor calculations. The results of the analysis are validated with field data in the form of logging data and coring data.

Based on a comparative analysis of the vshale formula, the Larionov formula has the most complete parameters compared to the other formulas. Based on the vshale comparison to determine the boundaries and thickness of the coal seams in the study area, the Larionov formula (tertiary rock) has the smallest thickness difference with the coring data, which is 1 cm. Based on the subsurface cross-section and the 3D model from the calculation of the k-nearest neighbor in the study area, at the cross-section using the linear formula, Larionov (older rock), steiber and clavier there is a discrepancy between the boundary layers in well 5 and the presence of lithology in well 9. The cross-section using Larionov's formula (tertiary rock) has compatibility with coring and logging data related to rock layer boundaries and lithology suitability.

Keywords: vshale formula, Well logging, Data coring