

ABSTRAK

ANALISA HUBUNGAN VOLUME SHALE DAN DENSITAS TERHADAP KUALITAS BATUBARA MENGGUNAKAN WELL LOGGING PADA LAPISAN BATUBARA DAERAH “WS” KECAMATAN MERAPI TIMUR, KABUPATEN LAHAT, PROVINSI SUMATERA SELATAN

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Daerah penelitian terletak di daerah “WS” Kecamatan Merapi Timur, Kabupaten Lahat, Propinsi Sumatera Selatan. Secara geografis terletak pada $3^{\circ}30'25''$ - $3^{\circ}44'20''$ LS dan $103^{\circ}29'30''$ - $103^{\circ}53'30''$ BT.

Penelitian ini menggunakan metode *well logging* dengan titik bor sebanyak 20 titik bor. Tujuan penelitian ini adalah untuk menganalisa dari hubungan data log densitas dan log *Gamma ray* dengan kalori, *total moisture* serta kandungan abu pada lapisan batubara.

Hasil penelitian menunjukkan bahwa batubara pada daerah penelitian memiliki rata – rata nilai densitas 1,58 gr/cc, *total moisture* 39,32 %, kalori 5491,66 cal/g dan kandungan abu 6,54 %. Dengan menggunakan metode *trideline scatterplot bivariate* digunakan untuk mendapatkan hubungan korelasi dari 2 variabel, dimana pada daerah penelitian memiliki hubungan kuat – sangat kuat. Dari hasil hubungan antara density dengan *total moisture* memiliki variasi positif $R^2 = 72,07\%$. Hubungan antara densitas dengan kalori memiliki variasi positif $R^2 = 68,66\%$. Hubungan antara densitas dengan kandungan abu memiliki variasi negatif $R^2 = 79,48\%$. Hubungan kandungan abu dengan kalori memiliki variasi positif $R^2 = 69,54\%$. Hubungan antara *Vshale* dengan kandungan abu dengan kalori memiliki nilai variasi positif $R^2 = 65,95\%$. Hubungan antara *total moisture* dengan kalori memiliki variasi positif $R^2 = 60,88\%$. Semakin besar *Vshale* maka densitasnya semakin kecil, sehingga semakin banyak *Vshale* kualitas batubara semakin jelek. Dilihat dari hasil hubungan tersebut kualitas batubara pada daerah penelitian adalah kualitas baik. Pada korelasi antar sumur dapat dijelaskan semakin ke arah barat semakin menunjam dan semakin ketimur lapisannya semakin naik.

Kata kunci : *well logging*, *log density*, *total moisture*, kalori, kandungan abu

ABSTRACT

ANALYSIS OFRELATIONSHIP OF VOLUME DENSITY OF SHALE AND COAL QUALITY USING WELL LOGGING IN THE COAL LAYER "WAS"ON DISTRICT MERAPI TIMUR, LAHAT DISTRICT, SOUTH SUMATERA

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The research area is located in the "WS" Eastern District of Merapi, Lahat Regency, South Sumatra Province. Generally geogafis located at $3^{\circ} 30'25''$ - $3^{\circ} 44'20''$ S and $103^{\circ} 29'30''$ - $103^{\circ} 53'30''$ BT.

This study uses *well logging* with drill point drill as many as 20 points. The purpose of this study was to clicking analysis of the relationship log data density and *gamma ray* logs with *calories*, *total moisture* and ash content in the coal seam.

The results showed the average of coal density was of 1.58 g / cc , *a total of* 39.32% *moisture*, *calories* 5491.66 cal / g and ash content of 6.54% . By using *bivariate scatterplot trideline* methode to obtain the correlation of the two variables, whereas in this area has a strong relationship till very strong. From the results of the relationship between the *total moisture* density has a positive variation of $R^2 = 72.07\%$. The relationship between the caloric density has a positive variation of $R^2 = 68.66\%$. The relationship between the density of the ash content has a negative variation of $R^2 = 79.48\%$. jRelationship with the calorie content of ash has a positive variation of $R^2 = 69.54\%$. The relationship between *Vshale* the calorie content of ash with a positive variation values $R^2 = 65.95\%$. The relationship between *total moisture* with *calories* has a positive, $R^2 = 60.88\%$. Results of the relationship of coal quality in the study area is of good quality. On the correlation between wells can be explained further to the west is getting more lower, and further east is getting uper.

Keywords: *well logging*, *log density*, *total moisture*, *calories*, *ash content*.