SARI

Geologi dan Analisis Pengaruh Kandungan Abu Batubara terhadap Potensi Pembentukan *Slagging* dan *Fouling* Pit X-1, Kabupaten Kutai Timur, Kalimantan Timur

Di Indonesia, pemanfaatan batubara sebagai sumber energi semakin meningkat setiap tahunnya. Saat ini penggunaan batubara sebagai bahan bakar di PLTU. Penelitian ini bertujuan untuk mengetahui kondisi geologi, kualitas batubara, kandungan abu batubara, nilai titik leleh abu, dan pengaruh kandungan abu batubara terhadap potensi pembentukan *slagging* dan *fouling*. Daerah penelitian berada di daerah Kaubun, Kabupaten Kutai Timur, Kalimantan Timur. Metode yang dilakukan yaitu pengamatan kondisi geologi, analisis kualitas batubara meliputi analisis proksimat, nilai total sulfur, nilai kalor, analisis kandungan abu batubara, dan analisis titik leleh abu. Geomorfologi daerah penelitian yaitu Satuan Perbukitan Struktural Berlereng Curam-Menengah dan Satuan Perbukitan Struktural Berlereng Miring. Stratigrafi daerah penelitian terdiri dari Satuan Batulempung Sisipan Batupasir dan Satuan Perselingan Batupasir-Batulempung. Hasil analisis yang dilakukan terhadap 5 seam batubara sumur Y19 PIT X-1, menghasilkan kualitas batubara seam 13U, seam 13L, seam 12, seam 11, termasuk batubara sub-bituminus B dan seam 10 termasuk batubara sub-bituminus A. Seam 13U, seam 13L, dan seam 11 termasuk abu bituminus, seam 12 dan seam 10 termasuk abu lignit. Seam 13U memiliki indeks *slagging* 0,66; indeks *fouling* 1,02. Seam 13L memiliki indeks *slagging* 0,07; indeks *fouling* 0,06. Seam 12 memiliki nilai AFT 1200^0C; indeks *fouling* 1,16. Seam 11 memiliki indeks *slagging* 17,27; indeks *fouling* 3,42. Seam 10 memiliki nilai AFT 1292^0C; indeks *fouling* 0,53. Dari perhitungan tersebut, potensi *slagging* seam 13L rendah, seam 13U dan seam 10 sedang, seam 12 tinggi, seam 11 parah. Sedangkan potensi *fouling* seam 13L, seam 12, dan seam 10 rendah, seam 13U dan seam 11 parah.

Kata kunci : Kaubun, Batubara, Abu, *Slagging*, *Fouling*

ABSTRACT

Geology and Analysis of the Effect of Coal Ash Content on the Potential Formation of Slagging and Fouling Pit X-1, East Kutai Regency, East Kalimantan

In Indonesia, the use of coal as an energy source is increasing every year. Currently, the use of coal is as a fuel in PLTU. This study aims to determine the geological conditions, coal quality, coal ash content, ash fusion temperature, and the effect of coal ash content on the potential formation of slagging and fouling. The research area is located in the Kaubun area, East Kutai Regency, East Kalimantan. The methods used are the observation of geological conditions, coal quality analysis include proximate analysis, total sulfur and calorific value, coal ash content analysis, and ash fusion temperature analysis. The geomorphology of the research area is Structural Hills Unit with Medium-Steep Slope, and Structural Hills Unit with Sloping Slope. The stratigraphy of the research area consists of Sandstone Insertion Claystone Unit and Sandstone-Claystone Interchange Unit. The results of the analysis conducted on 5 coal seams of the Y19 well PIT X-1, resulted in coal quality seam 13U, seam 13L, seam 12, and seam 11, include sub-bituminous B coal, and seam 10 include sub-bituminous A coal. Seam 13U, seam 13L, and seam 11 are bituminous ash, while seam 12 and seam 10 are lignite ash. Seam 13U has a slagging index of 0.66; fouling index 1.02. Seam 13L has a slagging index of 0.07; fouling index 0.06. The Seam 12 has an AFT rating of 1200^{o}C; fouling index 1.16. Seam 11 has a slagging index of 17.27; fouling index 3.42. The Seam 10 has an AFT rating of 1292^{o}C; fouling index 0.53. From these calculations, the slagging potential for seam 13L is low, seam 13U and seam 10 are medium, seam 12 is high, seam 11 is severe. While the fouling potensial of seam 13L, seam 12, and seam 10 are low, seam 13U and seam 11 are severe.

Keywords : Kaubun, Coal, Ash, Slagging, Fouling