ANALISIS FAKTOR *BABCOCK AND WILCOX* PADA BATUBARA UNTUK MENCEGAH *SLAGGING* DAN *FOULING* DI PT ANINDYA WIRAPUTRA KONSULT KECAMATAN LIANG ANGGANG KOTA BANJARBARU PROVINSI KALIMANTAN SELATAN

SARI

Kualitas batubara amatlah penting dalam pemanfaatan sebagai bahan bakar. Dalam hal kualitas, batubara menghasilkan energi berupa kalor selama kegiatan pembakaran berlangsung. Namun hasil pembakaran hampir selalu ditemukan dalam keadaan tidak sempurna, sehingga menghasilkan residu akibat pembakaran itu, dalam hal ini *ash*. *Ash* sisa pembakaran batubara ini berpotensi untuk terjadinya *slagging* maupun *fouling*. Faktor-faktor yang mempengaruhi terjadinya *slagging* dan *fouling* ialah komposisi *ash* dan temperatur pemanasan. ***Babcock and Wilcox*** adalah perusahaan *boiler* yang menerapkan faktor potensi *slagging* dan *fouling* berdasarkan komposisi *ash* batubara yang meliputi SiO_2, Fe_2O_3, MgO, CaO, Al_2O_3, Na_2O, K_2O, TiO_2. Dari komposisi *ash* tersebut ***Babcock and Wilcox*** mengevaluasi juga terhadap temperatur leleh *ash (ash fusion temperature)*.

Tujuan penelitian ini untuk mengetahui karakteristik batubara dan kesesuaiannya terhadap spesifikasi ***Babcock and Wilcox***, mengetahui pengaruh komposisi *ash* batubara terhadap *ash fusion temperature* dan potensi terjadinya *slagging* serta *fouling* berdasarkan faktor ***Babcock and Wilcox***. Penelitian pencegahan *slagging* dan *fouling* ini dengan mengambil data primer analisis dasar, analisis ultimat, serta analisis khusus, selain itu data sekunder seperti spesifikasi berdasarkan sumber-sumber yang diperoleh.

Analisis kualitas batubara dilakukan pada lima sampel. Berdasarkan hasil analisis dasar diperoleh *inherent moisture* (15,7 – 18,9%), *ash* (2,2 – 3,3%), *volatile matter* (40 – 42%), *fix carbon* (37 – 41%). Pada analisis ultimat, karbon (57 – 59%), hidrogen (4 – 4,4%), nitrogen (0,8 – 1%), sulfur (0,15 – 0,16%) dan analisis khusus nilai kalor (5346 – 5473 kcal/kg).

Berdasarkan nilai ***Babcock and Wilcox*** faktor *slagging* dan total sulfur kelima sampel termasuk kedalam kategori *low*. Sedangkan faktor *fouling* sampel 1 dan 3 termasuk kedalam kategori *medium*, sementara sampel 2, 4, dan 5 termasuk pada kategori *low*.

Kata Kunci : Babcock and Wilcox, Slagging, Fouling, Ash Fusion Temperature.

ANALYSIS BABCOCK AND WILCOX COAL FACTOR, FOR COAL TO AVOID SLAGGING AND FOULING AT PT ANINDYA WIRAPUTRA KONSULT LIANG ANGGANG SUBDISTRICT BANJARBARU CITY SOUTH BORNEO PROVINCE

ABSTRACT

Quality of coal was very important utilization for fuel. In a quality thing, for coals was produce energy a certain kind heat during burning activity. However burning result mostly meet imprefect combustion condition, so that produce a residue effect that combustion, in this case ash. The residual ash combustion coal was potential occur slagging and fouling. Some factors that supported slagging and fouling case was coal ash composition and heating temperature. **Babcock and Wilcox** was boiler concern apply slagging and fouling based by ash composition including SiO_2, Fe_2O_3, MgO, CaO, Al_2O_3, Na_2O, K_2O, TiO_2. From ash composition these **Babcock and Wilcox** also evaluating to ash fusion temperature.

These research purposes for detected coal characteristic and conformity to **Babcock and Wilcox**,for find out ash coal composition to ash fusion temperature and potentially slagging including fouling by **Babcock and Wilcox** factor. Research slagging and fouling here prevention obtained by primary data included general analysis, ultimate analysis, and specific analysis, furthermore secondary data including specification by obtained sources.

Analysis quality of coal as five sample. From the general analysis it can be concluded inherent moisture content (15,7 - 18,9%), ash (2,2 - 3,3%), volatile matter (40-42%), fix carbon (37 - 41%), ultimat analysis carbon was (57 - 59%), hydrogen (4 - 4,4%), nitrogen (0,8 - 1%), sulphur (0,15 - 0,16%) and specific analysis calorivic value (5346 – 5473 kcal/kg).

Based by **Babcock and Wilcox** slagging factor and sulphur total five sample was low category. Fouling factor sample 1 and 3 was included medium category, sample 2, 4, and 5 was included low category.

Keyword : Babcock and Wilcox, Slagging, Fouling, Ash Fusion Temperature.