

**Evaluasi untuk Rencana Pengelolaan Buangan Air Limbah Pertambangan Berdasarkan Parameter pH dan TSS dari *Settling Pond* 03 Pit AC PT. Angsana Jaya Energi di Kabupaten Tanah Bumbu, Kalimantan Selatan**

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**INTISARI**

Kegiatan pertambangan batu bara secara umum memiliki risiko penurunan kualitas lingkungan seperti masalah ketergangguhan air yang menghadapi isu berupa keasaman air, kekeruhan air, dan mengandung logam berat. Hadirnya air limbah pertambangan yang tidak memenuhi baku mutu berpotensi mencemari badan perairan apabila tidak dilakukan pengelolaan dengan baik. Penelitian dilakukan di area *Settling Pond* 03 Pit AC PT. AJE. Tujuan dari penelitian ini adalah untuk mengetahui kualitas buangan air limbah yang dihasilkan, mengetahui korelasi nilai pH, TSS, dan debit air berdasarkan korelasi pearson, dan merencanakan pengelolaan pada area *settling pond* berdasarkan parameter pH dan TSS.

Metode yang digunakan pada penelitian ini adalah metode kuantitatif melalui survei dan pemetaan, uji laboratorium *jar test*, analisis statistik, dan analisis deskriptif developmental. Pengambilan sampel dilakukan pada 8 titik yaitu *inlet*, *outlet*, 4 titik segmen pada parit, perairan hilir PT. AJE, dan perairan anak Sungai Sebamban. Penentuan kualitas air limbah mengacu pada Peraturan Gubernur No 36 Tahun 2008 tentang Baku Mutu Air Limbah Usaha dan/atau Kegiatan Pertambangan Batu Bara di Wilayah Kalimantan Selatan.

Hasil kualitas air limbah pada *inlet* memiliki rata-rata kadar pH 7,31 dan TSS 452,86 mg/L; *outlet* memiliki rata-rata kadar pH 7,09 dan TSS 128,29 mg/L; parit segmen I memiliki rata-rata kadar pH 6,7 dan TSS 132 mg/L; parit segmen II memiliki rata-rata kadar pH 6,5 dan TSS 151,43 mg/L; parit segmen III memiliki rata-rata kadar pH 6,51 dan TSS 118,57 mg/L; parit segmen IV memiliki rata-rata kadar pH 6,93 dan TSS 130,29 mg/L; perairan hilir PT. AJE memiliki rata-rata kadar pH 6,93 dan TSS 471,14 mg/L; sedangkan perairan anak Sungai Sebamban memiliki rata-rata kadar pH 7,01 dan TSS 395,43 mg/L. Berdasarkan analisis korelasi pearson diketahui bahwa antara variabel debit air dan kadar TSS di perairan hilir PT. AJE dan perairan anak Sungai Sebamban memiliki korelasi sempurna. Terdapat peningkatan debit air di perairan hilir PT. AJE yang menunjukkan adanya penambahan air yaitu diduga berasal dari aktivitas penambangan pasir ilegal. Hal tersebut mengakibatkan kembali memburuknya kualitas buangan air limbah di perairan hilir PT. AJE berdasarkan parameter pH dan TSS yang sebelumnya telah memenuhi baku mutu. Uji *jar test* menghasilkan rekomendasi dosis tawas antara 1680 – 2640 kg/hari dengan waktu pengendapan maksimum 180 menit. Direkomendasikan pula pembuatan saluran terbuka dan perbaikan parit dengan sistem *tyre drop structure* yang dapat menurunkan kecepatan aliran dari 3,3609 m/s menjadi 2,6563 m/s.

**Kata kunci:** Air Limbah Pertambangan, pH, TSS, Kolam Pengendapan, *Tyre Drop Structure*

***Evaluation for Mining Wastewater Management Plan  
Based on pH and TSS from Settling Pond 03 Pit AC PT. Angsana Jaya  
Energy in Tanah Bumbu District, South Kalimantan***

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**ABSTRACT**

*Coal mining activities in general have a risk of decreasing environmental quality such as water disturbance problems that face issues in the form of water acidity, water turbidity, and contain heavy metals. The presence of mining wastewater that does not meet quality standards has the potential to pollute water bodies if proper management is not carried out. The research was conducted in the area of Settling Pond 03 Pit AC PT. AJE. The purpose of this study is to determine the quality of wastewater discharges produced, determine the correlation of pH, TSS, and water discharge values based on pearson correlation, and plan management in the settling pond area based on pH and TSS parameters.*

*The methods used in this study are quantitative methods through surveys and mapping, jar test laboratory tests, statistical analysis, and descriptive developmental analysis. Sampling was carried out at 8 points, namely inlets, outlets, 4 segment points in trenches, downstream waters of PT. AJE, and the waters of tributaries of the Sebampan River. Determination of wastewater quality refers to Governor Regulation No. 36 of 2008 concerning Wastewater Quality Standards for Business and/or Coal Mining Activities in the South Kalimantan Region.*

*The results of wastewater quality at the inlet have an average pH level of 7.31 and TSS 452.86 mg / L; the outlet has an average pH level of 7.09 and TSS 128.29 mg/L; trench segment I has an average pH level of 6.7 and TSS 132 mg/L; trench segment II has an average pH level of 6.5 and TSS 151.43 mg/L; trench segment III has an average pH level of 6.51 and TSS 118.57 mg/L; trench segment IV has an average pH level of 6.93 and TSS 130.29 mg/L; downstream waters of PT. AJE has an average pH level of 6.93 and TSS 471.14 mg/L; while the waters of the Sebampan River tributary have an average pH level of 7.01 and TSS 395.43 mg / L. Based on pearson's correlation analysis, it is known that between variable water discharge and TSS levels in downstream waters of PT. AJE and the waters of the Sebampan River tributary have a perfect correlation. There is an increase in water discharge in the downstream waters of PT. AJE which shows the addition of water is suspected to come from illegal sand mining activities. This resulted in another deterioration in the quality of wastewater discharges in the downstream waters of PT. AJE is based on pH and TSS parameters that have previously met quality standards. The jar test produces alum dosage recommendations between 1680 – 2640 kg / day with a maximum settling time of 180 minutes. It is also recommended to build open channels and repair trenches with tyre drop structure systems that can reduce flow speed from 3.3609 m/s to 2.6563 m/s.*

**Keywords: Mining Wastewater, pH, TSS, Settling Pond, Tyre Drop Structure**