

RINGKASAN

Kolam pengendapan berfungsi sebagai tempat penampungan air yang bertujuan untuk mengendapkan partikel padat dari area penambangan. Salah satu permasalahan lingkungan di tambang batubara PT Lamindo Inter Multikon ialah kualitas air di kolam pengendapan (*settling pond*) yang tercemar partikel tersuspensi dan logam berat, sehingga memerlukan pengelolaan kualitas air agar memenuhi baku mutu berdasarkan PERMEN LHK No. 5 Tahun 2022.

Penelitian ini bertujuan untuk menganalisis kualitas air berdasarkan parameter pH, Fe, Mn, dan TSS, menganalisis metode Indeks Pencemaran (*Pollution Index*) pada *settling pond*, serta mengevaluasi efektivitas metode pengendalian aktif menggunakan kapur tohor (CaO) dan tawas aluminium sulfat ($\text{Al}_2(\text{SO}_4)_3$).

Metode penelitian meliputi studi literatur, observasi lapangan, pengambilan sampel air dari lima titik di kolam pengendapan, dan pengujian laboratorium berdasarkan standar SNI 6989.59-2008. Perlakuan dilakukan dengan penaburan kapur tohor dan tawas selama 15 hari.

Hasil penelitian menunjukkan bahwa setelah 15 hari perlakuan, pH air meningkat dari 5,0 menjadi 6,9, kadar TSS menurun dari 166,2 mg/L menjadi 36,6 mg/L, kandungan Fe menurun dari 1,89 mg/L menjadi 0,6 mg/L, dan kadar Mn menurun dari 0,00012775 mg/L menjadi 0,00000295 mg/L.

Kesimpulan dari penelitian ini ialah bahwa metode pengendalian aktif dengan menggunakan kapur tohor dan tawas efektif dalam mengelola kualitas air kolam pengendapan di PT Lamindo Inter Multikon. Namun, pemantauan rutin dan optimalisasi dosis bahan kimia tetap diperlukan untuk menjaga kualitas air sesuai standar lingkungan.

SUMMARY

The settling pond functions as a water storage facility designed to settle solid particles originating from mining activities. One of the environmental issues at PT Lamindo Inter Multikon's coal mining site is the water quality in the settling pond, which is contaminated with suspended solids and heavy metals. Therefore, water quality management is required to meet the quality standards based on the Ministry of Environment and Forestry Regulation (PERMEN LHK) No. 5 of 2022.

This study aims to analyze water quality based on parameters such as pH, Fe, Mn, and TSS; to assess the Pollution Index method in the settling pond; and to evaluate the effectiveness of active control methods using quicklime (CaO) and aluminum sulfate ($Al_2(SO_4)_3$).

The research methods include literature review, field observation, water sampling from five points within the settling pond, and laboratory testing based on the Indonesian National Standard (SNI) 6989.59-2008. Treatment was conducted by applying quicklime and aluminum sulfate for 15 days.

The research results showed that after 15 days of treatment, the water pH increased from 5.0 to 6.9, TSS levels decreased from 166.2 mg/L to 36.6 mg/L, Fe content decreased from 1.89 mg/L to 0.6 mg/L, and Mn levels decreased from 0.00012775 mg/L to 0.00000295 mg/L.

The conclusion of this study is that the active control method using quicklime and alum is effective in managing the water quality of the settling pond at PT Lamindo Inter Multikon. However, regular monitoring and optimization of chemical dosages are still necessary to maintain water quality in accordance with environmental standards.