

LAJU EROSI DAN SUSPENSI SEDIMEN DI *DISPOSAL AREA* UTARA DI PT. X DESA SUNGAI PAYANG, KECAMATAN LOA KULU, KABUPATEN KUTAI KARTANEGARA, PROVINSI KALIMANTAN TIMUR

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INTISARI

Penambangan terbuka batubara memerlukan pemindahan tanah penutup pada *Disposal Area* untuk bisa mendapatkan batubara. *Disposal Area* Utara didominasi tekstur lempung dan geluh pasiran. Perbedaan tekstur menyebabkan erosi dan suspensi sedimen berbeda. Tujuan penelitian untuk mengetahui erosi dan suspensi sedimen oleh dua jenis tekstur tanah, hubungan karakteristik hujan terhadap erosi, dan arahan pengendalian erosi dan suspensi sedimen sesuai dengan kondisi *Disposal Area* Utara.

Pengukuran erosi dilakukan menggunakan metode petak dimensi 15 m x 3 m. Penempatan petak pada lereng dengan tekstur geluh pasiran dan tekstur lempung selama 1,5 bulan. Pengambilan sampel erosi setiap kejadian hujan untuk dilakukan uji laboratorium sehingga bisa dilakukan analisis matematis jumlah erosi. Analisis karakteristik hujan dengan analisis statistika menggunakan regresi linear berganda. Perhitungan curah hujan rencana selama 5 tahun untuk mengetahui kemampuan penampungan drainase untuk arahan pengendalian yang kondisi *Disposal Area* Utara.

Hasil perhitungan erosi dan suspensi sedimen *Disposal Area* Utara seluas 8,5 ha dengan 22 kali kejadian hujan yaitu rata-rata erosi tekstur geluh pasiran 8,03 ton/ha dan lempung 5,58 ton/ha sedangkan suspensi sedimen pada tekstur geluh pasiran (*sandy loam*) rata-rata sebesar 469,8104 g/L dan tekstur lempung (*clay*) rata-rata sebesar 344,4049 g/L. Geluh pasiran mudah terangkut air limpasan permukaan sehingga erosi dan suspensi sedimen besar. Lempung memiliki agregat stabil sehingga tidak mudah tererosi. Analisis statistika terhadap karakteristik hujan bahwa Uji F berpengaruh dari intensitas hujan dan volume air limpasan permukaan terhadap erosi geluh pasiran dan lempung. Uji T pada hanya intensitas hujan berpengaruh terhadap geluh pasiran sedangkan lempung keduanya. Upaya untuk mengendalikan erosi yaitu menyusun ulang lereng tiap timbunan agar sesuai kaidah geoteknik PT.X beserta pemberian drainase yaitu saluran teras, sistem penyaliran air (SPA), dan parit sesuai dengan tekstur tanah.

Kata Kunci: Erosi, Suspensi Sedimen, Pertambangan, *Disposal Area*, Kolam Pengendalian

***EROSION RATE AND SEDIMENT SUSPENSION TO THE NORTH
DISPOSAL AREA IN X INC., SUNGAI PAYANG VILLAGE, LOA KULU
DISTRICT, KUTAI KARTANEGARA REGENCY,
EAST KALIMANTAN PROVINCE***

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ABSTRACT

To obtain coal, the coal open pit mining business requires the removal of overburden in the Disposal Area. Clay and sandy loam textures dominate the North Area Disposal. Erosion and sediment suspension rates are affected by texture changes. The goal of this study was to determine the magnitude of erosion and sediment suspension caused by two different types of soil textures, the relationship between rain characteristics and erosion, and the direction of erosion control and sediment suspension based on the North Disposal Area's conditions.

Erosion measurements were carried out using the 15 m x 3 m dimension plot method. Placement of plots on slopes with sandy loam texture and clay texture for 1.5 months. Sampling of erosion for every rain event for laboratory tests can be carried out so that mathematical analysis of the amount of erosion can be carried out. Analysis of rain characteristics with statistical analysis using multiple linear regression. Calculation of planned rainfall for 5 years to determine the ability of drainage reservoirs for control directions.

The findings of the erosion and sediment suspension calculation at the North Area Disposal which covers an area of 8.5 ha and has a 22-time has an average sandy loam of 8.03 tons/ha and clay of 5.58 tons/ha. Sandy loam easily transported by surface runoff water, resulting in increased erosion and sediment suspension. Clay has a more durable aggregate, preventing the material from being easily eroded. f test on rainfall intensity and surface runoff water volume on erosion on sandy loam and clay demonstrates that there is an effect of rainfall intensity and surface runoff water volume on erosion sandy loam and clay. The sandy loam is influenced by t test on solely the intensity of rain, whereas the clay is influenced by both. Based on the erosion value, the to prevent erosion is to rearrange the slopes to comply with the X Inc. geotechnical rules, as well as to provide drainage, such as terrace drains, water drainage system (SPA), and ditches, according to the soil texture.

Keyword: *Erosion, Sediment Suspension, Mining, Disposal Area, Settling Pond*