

**BIOREMEDIASI TANAH TERCEMAR DI KAWASAN EKSPLOITASI
MINYAK BUMI TRADISIONAL SUMUR TUA WONOCOLO, DESA
WONOCOLO, KECAMATAN KEDEWAN, KABUPATEN BOJONEGORO,
PROVINSI JAWA TIMUR, MENGGUNAKAN METODE BIOPILE**

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INTISARI

Eksplorasi minyak bumi tradisional di sumur tua Desa Wonocolo, Bojonegoro, Jawa Timur sangat berdampak terhadap lingkungan. Kegiatan pengambilan dan pengolahan minyak bumi, dilakukan di area penambangan. Tanah yang menjadi salah satu objek yang berdampak langsung terhadap aktifitas penambangan. Tumpahan minyak bumi menyebabkan kerusakan pada tanah sehingga menjadi tercemar. Tujuan penelitian adalah mengetahui tingkatan pencemaran berdasarkan kadar awal TPH pada tanah dan Menganalisis laju penurunan TPH dengan biopile.

Metode yang digunakan adalah metode survey dan pemetaan. pengolahan tanah adalah bioremediasi dengan menggunakan metode biopile. Metode pengambilan sampel yaitu purposive sampling. Metode penentuan 3 sampel tanah, menggunakan metode wawancara dengan masyarakat mengenai produktifitas sumur minyak. Sampel tanah diambil dari 9 titik yang dikompositan menjadi 3 sampel yang sama. Pengolahan dilakukan dengan parameter penelitian kadar TPH yang terkandung dalam tanah dengan menggunakan retortkit. Tanah yang akan diolah dengan berat 2,5 Kg di treatmen dengan menggunakan pasir sebanyak 30% pasir dan 20% kompos serta bakteri dalam product agrobost sebanyak 750ml dimasukkan kedalam reaktor biopile dengan 3 kali pengulangan selama 2 minggu. Setiap satu minggu dilakukan pengecekan kadar untuk mengetahui penurunan kadar TPH per-minggu nya

Hasil penelitian data analisis mengenai tingkatan kadar cemaran dan laju penurunan TPH dari 3 sampel dari kadar TPH awal menunjukkan presentase kadar TPH awal tanah yang tercemar, sampel A 6,130%, sampel B 4,079% dan sampel C 1,912%. Penurunan kadar TPH dengan menggunakan reaktor biopile sampel A, B, dan C berturut-turut adalah 32,10%, 74,55% dan 67,64%.terbesar pada sampel dengan kode B dengan efisiensi 74,55%. Laju penurunan TPH dipengaruhi oleh kadar cemaran dan inokulum yang digunakan. Biopile selama 2 minggu menunjukkan perubahan kadar TPH, namun belum mencapai nilai minimal kadar TPH di dalam tanah yakni <1% sesuai dengan KEPMENLH No. 128 Tahun 2003

Kata Kunci : Biopile, Bioremediasi, Pertambangan Minyak Bumi Tradisional, Tanah Tercemar, dan *Total Petroleum Hydrocarbon* (TPH).

**SOIL CONTAMINATE BIOREMEDIATION AT CONVENTIONAL OIL
WELL EXPLOITATION SUMUR TUA WONOCOLO, DESA WONOCOLO,
KECAMATAN KEDEWAN, KABUPATEN BOJONEGORO,
PROVINSI JAWA TIMUR, WITH BIOPILE METHOD**

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ABSTRACT

Conventional oil well exploitation in Sumur Tua of Wonocolo Village, Bojonegoro, East Java has an enormous impact on the environment. Petroleum collection and processing activities, carried out in the mining area. Land that became one of the objects that directly impact on mining activities. Oil spills cause damage to the soil to become polluted. The objective of the study was to determine the level of pollution based on initial levels of TPH on soil and to analyze the rate of TPH decline with biopile.

The method used are survey and mapping method. soil treatment is bioremediation by using biopile method. Sampling method are purposive sampling. Method of determining 3 soil samples, using method of interview with community about productivity of oil well. Soil samples were collected from 9 composite points into 3 equal samples. The treatment was carried out by research parameters of TPH content contained in the soil using retortkit. The soil will be treated with a weight of 2.5 kg in the treatments by using sand as much as 30% sand and 20% of compost and bacteria in Agrobost product as much as 750ml is incorporated into the biopile reactor with 3 repetitions for 2 weeks. Every week a check is done to determine the decrease in TPH levels per week

The result of data analysis on contamination level and rate of TPH from 3 samples from TPH level showed percentage of TPH level of contaminated soil, The A sample of 6,130%, B sample 4,079% and C sample 1,912%. The decrease of TPH level by using the reactor of biopile samples A, B, and C were 32,10%, 74,55% and 67,64% respectively. Bigger in sample with code B with efficiency 74,55%. The rate of TPH decrease influenced by the contaminant and inoculum levels used. Biopile for 2 weeks showed change of TPH level, but not yet reached minimum value of TPH level in soil that <1% according to KEPMENLH No. 128 Year 2003

Keywords: Biopile Method, Bioremediation ,Conventionan oil well exploitation, Oil Spil, and *Total Petroleum Hydrocarbon* (TPH).