

## ABSTRAK

# **PENURUNAN TPH PADA TANAH DI SEKITAR SUMUR MINYAK DESA LEDOK DENGAN BIOREMEDIASI DAN FITOREMEDIASI MENGGUNAKAN KOHE KAMBING DAN AKAR WANGI**

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Lapangan produksi minyak di Desa Ledok merupakan bagian dari daerah operasional Pertamina di Cepu yang hak pengelolaan sumur minyak tua tersebut sudah tidak diproduksi oleh Pertamina secara resmi dan diberikan kepada kelompok masyarakat lokal yang kemudian dilakukan penambangan secara tradisional. Penambangan tersebut menyebabkan pencemaran hidrokarbon yang berpotensi mengalami penyebaran dan berdampak negatif bagi kehidupan disekitarnya. Oleh karena itu tujuan penelitian ini yaitu mengkaji potensi pencemaran tanah, menganalisis pencemaran tanah aktual berdasarkan parameter *Total Petroleum Hydrocarbon* (TPH), menghitung efektivitas penggunaan agen biologi dalam remediasi tanah tercemar, dan menentukan arahan pengelolaan yang sesuai.

Penelitian dilakukan menggunakan data primer dan data sekunder. Metode berupa metode survei dan pemetaan lapangan, metode *purposive sampling*, uji laboratorium, metode pengharkatan berbasis analisis sistem informasi geografis, analisis matematis, dan analisis deskriptif. Kemudian dilakukan uji percobaan atau eksperimen untuk mengurangi kadar TPH pada tanah menggunakan kombinasi tanaman akar wangi dan kohe kambing selama 28 hari dengan pengecekan nilai TPH setiap 14 hari.

Berdasarkan hasil analisis, diketahui potensi pencemaran pada lokasi penelitian tergolong ringan hingga tinggi. Pencemaran aktual pada lokasi penelitian tergolong tinggi dengan nilai TPH tertinggi 132.000 mg/kg dan terendah 60.000 mg/kg, dimana pencemaran semakin tinggi jika jaraknya semakin dekat dengan sumur minyak. Berdasarkan hasil percobaan yang telah dilakukan, diperoleh efektivitas perlakuan tertinggi oleh perlakuan 2 dengan dosis pupuk:tanah 1:2 yaitu sebesar 99,4% dari TPH awal sebesar 132.000 mg/kg dan TPH akhir sebesar 740 mg/kg. Dari analisis tersebut, direkomendasikan arahan pengelolaan dengan pendekatan teknologi berupa pemberian kohe kambing dan penanaman tanaman akar wangi, pendekatan sosial kepada masyarakat sekitar, serta koordinasi dengan institusi terkait.

**Kata kunci:** Kohe Kambing, Sumur Minyak Tradisional, Tanaman Akar Wangi, *Total Petroleum Hydrocarbon*

## **ABSTRACT**

### **DECREASE IN TPH IN SOIL AROUND OIL WELLS IN LEDOK VILLAGE THROUGH BIOREMEDIATION AND PHYTOREMEDIATION USING GOAT MANURE AND VETIVERIA ZIZANIOIDES**

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*The oil production field in Ledok Village is part of Pertamina's operational area in Cepu, where the management rights of the old oil wells are no longer officially operated by Pertamina and have been given to local community groups who then carry out traditional mining. This mining causes hydrocarbon pollution that has the potential to spread and negatively impact the surrounding area. Therefore, the objectives of this study are to assess the potential for soil pollution, analyze actual pollution based on the Total Petroleum Hydrocarbon (TPH) parameter, and calculate the effectiveness of using biological agents in remediating polluted soil.*

*The study was conducted using primary and secondary data. The methods used were field surveys and mapping, purposive sampling, laboratory tests, assessment based on geographic information system analysis, mathematical analysis, and descriptive analysis. Then, tests or experiments were conducted to reduce the TPH content in the soil using a combination of vetiveria zizanioides and goat manure for 28 days with TPH value checks every 14 days.*

*Based on the analysis results, it was found that the potential for pollution at the research site was classified as low to high. Actual pollution at the research site was classified as high, with the highest TPH value of 132.000 mg/kg and the lowest of 60.000 mg/kg, where pollution was higher the closer the distance to the oil well. Based on the results of the experiments conducted, the highest treatment effectiveness was obtained by treatment 2 with a goat manure:soil ratio of 1:2, which was 99.4% of the initial TPH of 132.000 mg/kg and a final TPH of 740 mg/kg. From this analysis, it is recommended that management be carried out using a technological approach in the form of goat manure application and the planting of vetiveria zizanioides, a social approach to the surrounding community, and coordination with relevant institutions.*

**Keywords:** *Goat Manure, Traditional Oil Wells, Vetiveria Zizanioides, Total Petroleum Hydrocarbons*