Pola Proteksi Radiasi Tenorm untuk Keberlanjutan Kesehatan Pekerja = Tenorm Radiation Protection Patterns for the Sustainable Health of Workers

Afthina Primanti, author

Abstrak

Produksi batubara di Indonesia terus meningkat untuk memenuhi kebutuhan energi nasional dan permintaan ekspor. Limbah padat dari proses pembakaran batubara diperkirakan bertambah secara signifikan, salah satu limbah berbahaya pertambangan adalah TENORM, namun sebagian TENORM tergolong barang produksi yang memiliki nilai ekonomi. Masalah dalam penelitian ini limbah yang mengandung TENORM memiliki volume yang cukup besar, serta aktivitas pembuangan, penggunaan, dan daur ulang TENORM berpotensi menyebabkan kontaminasi bagi pekerja di PLTU dan lingkungan sekitar. Tujuan penelitian adalah menganalisis tingkat radiasi TENORM dari abu batubara PLTU, persepsi sosial-ekonomi pekerja PLTU, efektivitas penyuluhan proteksi radiasi TENORM, serta membuat model pola proteksi radiasi TENORM agar sesuai dengan PP No 33 tahun 2007. Metode yang digunakan adalah metode campuran dengan pendekatan kuantitatif. Instrumentasi pengumpulan data berupa kuesioner, dan analisis statistik dengan model SEM untuk membuat model pola proteksi. Hasil penelitian menunjukan tingkat konsentrasi radioaktivitas TENORM berada dibawah nilai ambang batas, namun secara akumulasi telah melebihi nilai ambang batas. Persepsi sosial-ekonomi pekerja di PLTU Suralaya terkait risiko paparan radiasi TENORM masih rendah, namun pekerja telah memiliki asuransi kesehatan. Model SEM pola proteksi menunjukan terdapat pengaruh signifikan antara variabel WTP setelah penyuluhan dengan variabel penerimaan terhadap Proteksi TENORM sebesar 0,730, pengetahuan TENORM sebelum dan setelah penyuluhan sebesar 0,627, dan penerimaan terhadap proteksi TENORM terhadap pengetahuan TENORM sebesar 0,648. Kesimpulan penelitian yaitu konsentrasi radiasi TENORM pada tiga lokasi pengukuran secara akumulatif telah melebihi ambang batas. Tingkat pengetahuan pekerja terkait radiasi TENORM sebelum penyuluhan masih sangat rendah. Efektivitas penyuluhan proteksi radiasi TENORM pada pekerja sebesar 100%. Model SEM pola proteksi radiasi TENORM terhadap pekerja PLTU Suralaya sesuai dengan regulasi.

.....Coal production in Indonesia is estimated to continue to increase to meet national energy needs and export demand. Solid waste from the coal combustion process is estimated to increase significantly if it is not utilized effectively. One of the hazardous mining wastes is TENORM, but some TENORM are classified as production goods with economic value. The problem with this research is that waste containing TENORM has a large enough volume. TENORM's disposal, use and recycling activities have the potential to contaminate workers at the PLTU and the surrounding environment. The study aimed to analyze TENORM radiation levels, socio-economic perceptions of PLTU workers, the effectiveness of TENORM radiation protection education, and create a TENORM radiation protection pattern model to comply with the Republic of Indonesia Government Regulation No.33 of 2007. The method used is a mixed method with a quantitative approach. Data collection and analysis obtained by questionnaire and statistical analysis using the SEM model to create a protection pattern model. The results showed that the concentration level of TENORM radioactivity at each measurement location was below the threshold value, but cumulatively it exceeded the threshold value. The socio-economic perception of workers at PLTU Suralaya regarding the

risk of TENORM radiation exposure is still low, but workers already have health insurance. The protection pattern's SEM model shows a significant positive relationship between the WTP variable and the variable Acceptance of TENORM Protection, Acceptance of TENORM Protection and Knowledge of TENORM before and after counselling. The study concludes that the TENORM radiation concentration at the three measurement locations has cumulatively exceeded the threshold. The knowledge of workers related to TENORM radiation before counselling is still deficient. The effectiveness of TENORM radiation protection counselling to workers is 100%. The SEM model of the TENORM radiation protection pattern for PLTU Suralaya workers complies with regulations.