Penilaian Pajanan Kebisingan Menggunakan Analisis Keputusan Bayesian (BDA) Pada Similar Exposure Group (SEG) Unit Recovery Boiler dan Power Boiler di PT. XYZ Tahun 2023

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Abstrak

Noise Induced Hearing Loss (NIHL) atau gangguan pendengaran akibat bising merupakan penyakit akibat kerja yang paling umum diderita di dunia. Sekitar 16 % dari total gangguan pendengaran pada orang dewasa di dunia dikaitkan dengan kebisingan akibat pekerjaan. Diperkirakan 1,3 miliar orang menderita gangguan pendengaran akibat paparan kebisingan. PT. XYZ merupakan perusahan manufaktur industri pulp and paper yang memiliki pajanan kebisingan tinggi khususnya pada SEG Operator unit recovery boiler dan SEG power boiler. Penelitian ini bertujuan untuk melakukan penilaian pajanan kebisingan dengan menggunakan pendekatan Bayesian Decision Analysis (BDA) dengan menentukan distribusi prior, distribusi likelihood dan distribusi posterior pada SEG recovery boiler dan SEG power boiler. Penelitian ini merupakan penelitian deskriptif analitik dengan pendekatan kuantitatif yang dilaksanakan pada bulan April - Mei 2023. Pengumpulan data dilakukan melalui observasi, pengukuran dosis kebisingan personal, dan expert judgment. Data dianalisis dengan menggunakan software IHData Analyst-AIHA dan EXPOSTATS. Hasil penelitian menunjukan bahwa terdapat variasi yang moderate apda kedua SEG. Distribusi probabilitas prior pajanan kebisingan pada SEG recovery boiler memiliki certainty level 1 pada kategori 4 (poor control) sedangkan pada SEG power boiler memiliki certainty level 0,995 pada kategori 4 (poor control) dan certainty level 0,005 pada kategori 3 (controlled). Distribusi probabilitas likelihood pada kedua SEG recovery boiler dan power boiler memiliki certainty level 1 pada kategori 4. Sehingga distribusi probabilitas posterior kedua SEG recovery boiler dan power boiler adalah masing-maisng pada kategori 4 (poor control) dengan certainty level 1. Hal ini menunjukan bahwa pajanan kebisingan pada kedua SEG tidak dapat diterima (unacceptable). Peneliti menyarankan untuk melakukan pengendalian segera dengan menerapkan Hearing Consevation Program secara komprehensif dan berkelanjutan, melakukan refining SEG dengan uji variasi individual compliance test dan menggunakan metode BDA dalam melakukan penilaian pajanan kerja. <hr /> Noise Induced Hearing Loss (NIHL) is the most common occupational disease worldwide. Approximately 16% of total adult hearing impairments in the world are associated with occupational noise. It is estimated that 1.3 billion people suffer from hearing impairments caused by noise exposure. PT. XYZ is a manufacturing company in the pulp and paper industry which has high noise exposure, especially for the SEG Operator in the recovery boiler unit and the SEG power boiler unit. This study aims to assess noise exposure using Bayesian Decision Analysis (BDA) approach by determining the prior distribution, likelihood distribution, and posterior distribution in the SEG recovery boiler and SEG power boiler. This research is a descriptive analytical study with a quantitative approach conducted from April to May 2023. Data collection was carried out through observation, personal noise dose measurements, and expert judgment. The data were analyzed using the IHData Analyst-AIHA and EXPOSTATS software. The results show that there are moderate variations in the two SEGs. The prior probability distribution of noise exposure in the SEG recovery boiler has a certainty level 1 in category 4 (poor control) while in the SEG power boiler

it has a certainty level of 0.995 in category 4 (poor control) and a certainty level of 0.005 in category 3 (controlled). The likelihood probability distribution for both SEG recovery boilers and power boilers has certainty level 1 in category 4. So that the posterior probability distribution for both SEG recovery boilers and power boilers is respectively in category 4 (poor control) with certainty level 1. This shows that noise exposure in both SEGs is unacceptable. Researchers suggest carrying out immediate control by implementing a comprehensive and sustainable Hearing Conservation Program, refining SEGs with individual compliance test variations and using the BDA method of conducting occupational exposure assessments.