Penilaian Pajanan Kebisingan Menggunakan Analisis Keputusan Bayesian (BDA) Pada Similar Exposure Group (SEG) Unit Recovery Boiler dan Power Boiler di PT. XYZ = Noise Exposure Assessment Using Bayesian Decision Analysis (BDA) On Similar Exposure Group Unit Recovery Boiler and Power Boiler In PT. XYZ

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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. 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. 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 kedua SEG. 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 pada 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-masing 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, melakukan refining SEG dengan uji variasi individual compliance test dan menggunakan metode BDA dalam melakukan penilaian pajanan kerja.

.....Noise Induced Hearing Loss (NIHL) caused by noise is the most common occupational disease worldwide. It is estimated that 1.3 billion people suffer from hearing disorders due to noise exposure. PT. XYZ is a pulp and paper manufacturing company with high noise exposure. This study aims to assess the noise exposure using Bayesian Decision Analysis (BDA) approach by determining the prior distribution, likelihood distribution, and posterior distribution in both SEGs. This is descriptive analytic research with a quantitative approach conducted in April - May 2023. Data collection was done through observation, personal noise dosimetry measurement, and expert judgment. The data were analyzed using IHData Analyst-AIHA and EXPOSTATS software. The results of the study showed a moderate variation in both SEGs. The prior probability distribution of noise exposure in the recovery boiler SEG had a certainty level of 1 in category 4 (poor control), while in the power boiler SEG, it had 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 in both the recovery boiler and power boiler SEGs had a certainty level of 1 in category 4. Thus, the posterior probability distribution in both the recovery boiler and power boiler SEGs was categorized as 4 (poor

control) with a certainty level of 1. This indicates that the noise exposure in both SEGs is unacceptable. The researchers suggest immediate control measures by implementing a Hearing Conservation Program, refining the SEGs through individual compliance test variations, and using the BDA method for occupational exposure assessment.