ANALISIS RISIKO PADA AKTIVITAS PEKERJAAN DI UNIT 1 PT PLN INDONESIA POWER UBP JAWA BARAT 2 MENGGUNAKAN METODE *HAZARD IDENTIFICATION RISK ASSESSMENT AND DETERMINING CONTROL* (HIRADC)

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Abstrak

Pembangkit Listrik Tenaga Uap (PLTU) merupakan industri dengan tingkat risiko kecelakaan kerja yang tinggi akibat operasional mesin berskala besar, tekanan tinggi, dan paparan bahaya fisik, kimia, serta ergonomi. Penelitian ini bertujuan untuk mengidentifikasi potensi bahaya, menilai tingkat risiko, serta merumuskan tindakan pengendalian risiko menggunakan metode *Hazard Identification, Risk Assessment, and Determining Control* (HIRADC) pada Unit 1 PT PLN Indonesia Power UBP Jawa Barat 2. Penelitian dilakukan terhadap sembilan jenis aktivitas pengoperasian mesin, termasuk PA *Fan*, ID *Fan*, FD *Fan*, *Pulverizer Mill*, *Vacuum Pump*, *Condensate Extraction Pump* (CEP), *Condensate Make-Up Pump* (CMP), sistem pelumasan, dan *Cooling Water Pump*. Data diperoleh melalui observasi lapangan, wawancara, serta kuesioner kepada operator dan petugas K3. Hasil analisis menunjukkan bahwa dari 30 potensi bahaya yang teridentifikasi, 77% dikategorikan sebagai risiko tinggi, 20% risiko sedang, dan 3% risiko ekstrem. Tingkat risiko tertinggi ditemukan pada pengoperasian *Condensate Make-Up Pump* (CMP) dengan nilai risiko ekstrem (20). Rekomendasi pengendalian diberikan sesuai dengan hirarki pengendalian risiko, seperti pemasangan pelindung mesin, penggunaan sensor otomatis, sistem interlock, serta implementasi prosedur kerja aman dan alat pelindung diri (APD). Penelitian ini diharapkan dapat menjadi dasar pengambilan keputusan dalam penerapan sistem manajemen keselamatan dan kesehatan kerja (SMK3) serta meningkatkan keselamatan kerja dan keandalan operasional pembangkit listrik.

Kata kunci*:* Sistem HIRADC, PLTU, risiko kerja, keselamatan kerja, pengendalian bahaya.

RISK ANALYSIS OF WORK ACTIVITIES AT UNIT 1 PT PLN INDONESIA POWER UBP WEST JAVA 2 USING THE HAZARD IDENTIFICATION, RISK ASSESSMENT, AND DETERMINING CONTROL (HIRADC) METHOD

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Abstract

Electric Steam Power Plant (PLTU) is an industry with a high risk of occupational accidents due to the operation of large-scale machinery, high pressure, and exposure to physical, chemical, and ergonomic hazards. This study aims to identify potential hazards, assess risk levels, and formulate risk control measures using the Hazard Identification, Risk Assessment, and Determining Control (HIRADC) method at Unit 1 of PT PLN Indonesia Power UBP West Java 2. The study was conducted on nine types of machine operating activities, including PA Fan, ID Fan, FD Fan, Pulverizer Mill, Vacuum Pump, Condensate Extraction Pump (CEP), Condensate Make-Up Pump (CMP), lubrication system, and Cooling Water Pump. Data were obtained through field observations, interviews, and questionnaires to operators and Safety and Health officers. The analysis results showed that of the 30 potential hazards identified, 77% were categorized as high risk, 20% as moderate risk, and 3% as extreme risk. The highest risk level was found in the operation of the Condensate Make-Up Pump (CMP), with an extreme risk score (20). Control recommendations are provided according to the risk control hierarchy, such as the installation of machine guards, the use of automatic sensors, interlock systems, and the implementation of safe work procedures and personal protective equipment (PPE). This research is expected to provide a basis for decision-making in implementing an occupational health and safety management system (SMK3) and improve the safety and operational reliability of the power plant.

Keywords: HIRADC system, Electric Steam Power Plants, occupational risks, occupational safety, hazard control.

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