



## WORK SAFETY RISK ANALYSIS USING HIRARC METHOD IN IRON PRODUCTION AREA PT. JAVA RAKINDO

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### Abstract

*HIRARC (Hazard Identification, Risk Assessment and Risk Control) is a series of processes to identify hazards that can occur in routine or non-routine activities in the company, then carry out a risk assessment of these hazards and then create a hazard control program so that the risk level can be minimized to a lower level. with the aim of preventing accidents. The implementation of K3 begins with good planning including, identification of hazards, assessment and risk control which are part of risk management. HIRARC is what determines the direction of K3 implementation in the company. This study aims to determine the risk analysis of occupational safety and health in the work production section of PT. Java Rakindo This type of research is a quantitative study using a descriptive approach. The population in this study were all workers in the work environment at PT. Java Rakindo with a total sampling technique that is as many as 25 respondents who are in the iron production section. The data were analyzed using univariate to describe the respondent's characteristics and to analyze each variable. K3 risk analysis using the HIRARC method obtained an assessment that the most dominant K3 hazard is substitution hazard of 72% (high). K3 risk assessment with a moderate level of risk category (Medium) of 84%. Administrative control of 92% and control of PPE by 100% so that it can be said that it has not been fully implemented (50%-90%).*

*Keywords—K3, HIRARC, K3 hazard identification, K3 risk assessment, K3 risk control*

### Abstrak

*HIRARC (Hazard Identification, Risk Assessment and Risk Control) adalah rangkaian proses untuk mengidentifikasi bahaya yang dapat terjadi pada kegiatan rutin maupun non-rutin di perusahaan, kemudian melakukan penilaian risiko terhadap bahaya tersebut dan kemudian membuat program pengendalian bahaya sehingga bahwa tingkat risiko dapat diminimalkan ke tingkat yang lebih rendah. dengan tujuan untuk mencegah terjadinya kecelakaan. Pelaksanaan K3 dimulai dengan perencanaan yang baik meliputi, identifikasi bahaya, penilaian dan pengendalian risiko yang merupakan bagian dari manajemen risiko. HIRARC inilah yang menentukan arah implementasi K3 di perusahaan. Penelitian ini bertujuan untuk mengetahui analisis risiko keselamatan dan kesehatan kerja pada bagian produksi kerja PT. Java Rakindo Jenis penelitian ini adalah penelitian kuantitatif dengan menggunakan pendekatan deskriptif. Populasi dalam penelitian ini adalah seluruh pekerja di lingkungan kerja di PT. Java Rakindo dengan teknik total sampling yaitu sebanyak 25 responden yang berada di bagian produksi besi. Analisis data dilakukan secara univariat untuk menggambarkan karakteristik responden dan menganalisis masing-masing variabel. Analisis risiko K3 dengan metode HIRARC diperoleh penilaian bahwa hazard K3 yang paling dominan adalah hazard substitusi sebesar 72% (tinggi). Penilaian risiko K3 dengan kategori tingkat risiko sedang (Sedang) sebesar 84%. Pengendalian administratif sebesar 92% dan pengendalian APD sebesar 100% sehingga dapat dikatakan belum sepenuhnya dilaksanakan (50%-90%).*

*Kata kunci—K3, HIRARC, identifikasi bahaya K3, penilaian risiko K3, pengendalian risiko K3*

## INTRODUCTION

The risk of work accidents can occur at all levels. In general, the main targets of work accidents are employees/operators.<sup>1</sup> Every accident that occurs always causes losses such as the number of lost working hours, decreased productivity and decreased company profits. This requires good human resource management.<sup>2</sup> So that the risks of work accidents are not too great. Various measurements can be used to solve work accident problems in a company that has problems regarding the number of work accidents, ranging from system manipulation, engineering engineering, preventive measures, priority scale, activity administration and so on. The application of Occupational Health and Safety (K3) in the workplace is an effort to create a safe, comfortable and healthy working atmosphere and environment for workers.<sup>3</sup> PT. Java Rakindo sees the state of an open (outdoor) scope of work where potential hazards are obtained such as physical factors caused by noise, chemical factors caused include solids, liquid particles, gases, mists, aerosols and vapors, while the ergonomic factors it causes are the presence of incompatibility between workers and equipment or equipment used when working. It can be seen from risky work activities and the absence of PPE use. On this basis this makes the focus of attention

PT Java Rakindo for prevention so that workers still feel safe during work activities. However, in carrying out prevention it is necessary to identify potential hazards and control risks which are continued with the HIRARC method to help identify potential accidents based on current or past events and experiences related to similar products or processes so that the results of identification are based on actual events in the work field so that safety is applied. Occupational health has efficient and effective value for the company.<sup>4</sup> PT Java Rakindo has a work accident problem that makes the work process disrupted and not optimal, even stopped due to work accidents that have occurred previously from work accidents, the company has not found the right solution to deal with this problem by considering the previously transformed work accident data. into a HIRARC hazard identification and risk assessment table.<sup>5</sup> The topic of this research is taken so that the company can identify work accidents that occur and can find the right solution so that it can reduce the number of work accidents that occur in the field. Based on this background and the many potential hazards that can occur from the work process at PT Java Rakindo, the author takes the title

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<sup>1</sup> Abdurrozzaq, *Teknik Keselamatan Dan Kesehatan Kerja*. (Yayasan Kita Menulis, T.T.), Hal. 67.

<sup>2</sup> Eni Mahawati, Dkk, *Keselamatan Kerja Dan Kesehatan Lingkungan Industri* (Yayasan Kita Menulis, 2021), Hal. 100.

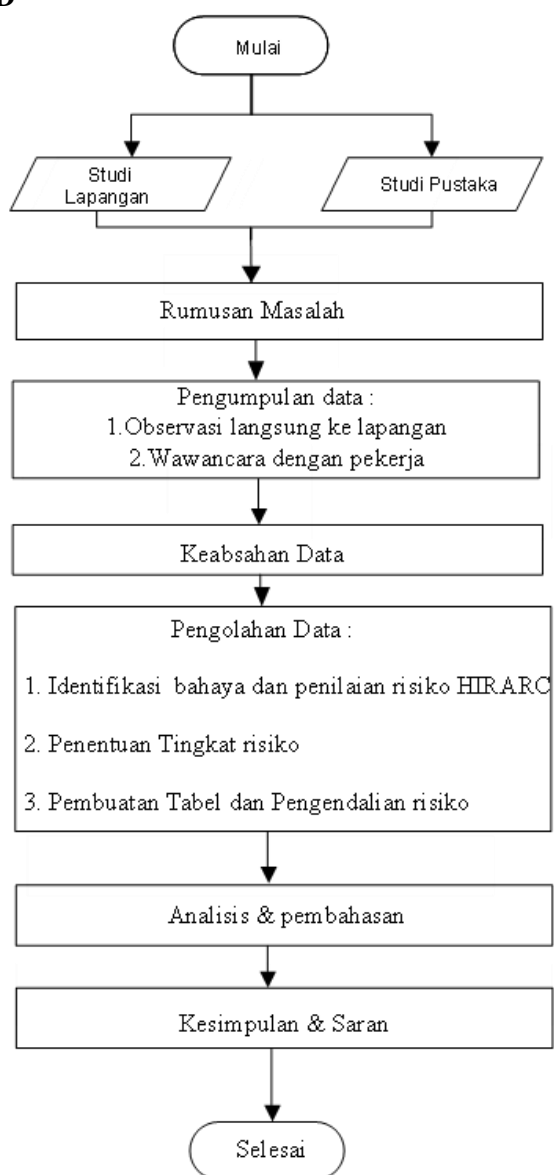
<sup>3</sup> Ryani Dhyana Parashakti Dan Putriawati, "Pengaruh Keselamatan Dan Kesehatan Kerja (K3), Lingkungan Kerja Dan Beban Kerja Terhadap Kinerja Karyawan," *Jurnal Ilmu Manajemen Terapan* 1, No. 3 (1 Maret 2020): Hal. 295-296, <https://doi.org/10.31933/jimt.v1i3.113>.

<sup>4</sup> Rini Alfatiyah, "Analisis Manajemen Risiko Keselamatan Dan Kesehatan Kerja Dengan Menggunakan Metode Hirarc Pada Pekerjaan Seksi Casting" 11, No. 2 (2017): Hal. 76.

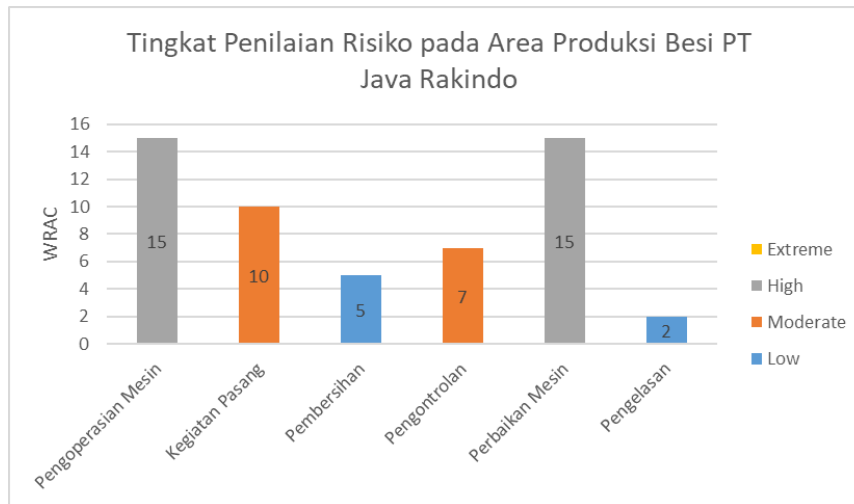
<sup>5</sup> Rudy Darmawan, Nurul Ummi, Dan Ani Umyati, "Identifikasi Risiko Kecelakaan Kerja Dengan Metode Hazard Identification And Risk Assessment ( Hira ) Di Area Batching Plant Pt Xyz" 5, No. 3 (2017): Hal. 54.

"Analysis of Occupational Safety Risks with the Hirarc Method in the Iron Production Area of PT. Java Rakindo.

## RESEARCH METHOD



## RESULTS AND DISCUSSION



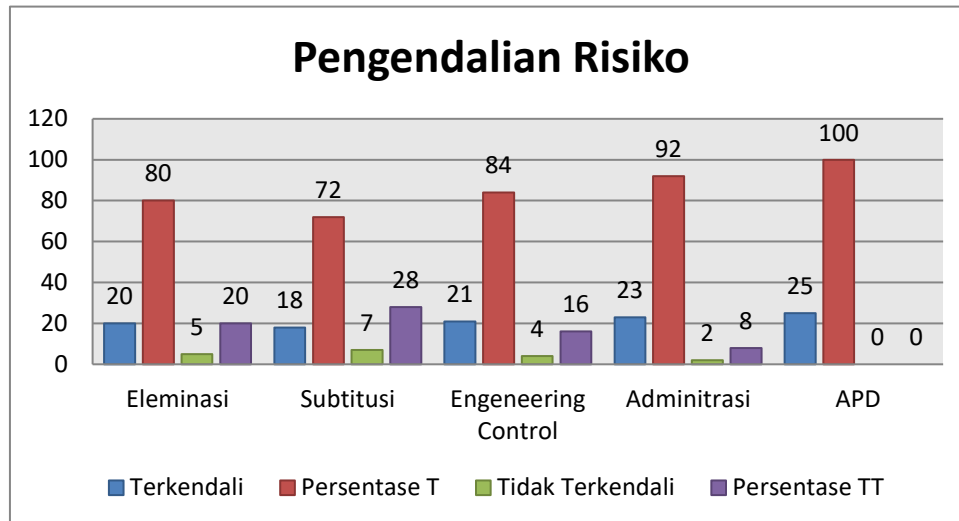
Based on the results of the risk assessment level in the iron production division of PT. Java Rakindo in 2020, namely in the first activity "operating machines" there were a total of 20 WRACs with the category of High Risk level of risk. The second activity "frame installation activity" has a total of 10 WRACs with a moderate risk level category. The third activity "cleaning and controlling machines" There are a total of 5 WRAC with the category of Low Risk level of risk. The fourth activity "controlling the workplace" has a total of 7 WRAC with the risk category of Moderate Risk.<sup>6</sup> The fifth activity "engine repair" has a total of 15 WRAC with the category of High Risk level of risk. The sixth activity "welding" there are a total of 2 WRAC with the category of Low Risk level of risk.<sup>7</sup>

risk control shows the distribution of risk control PT. Java Rakindo Year 2020 shows that risk control has a greater controllable value in the company that has been provided, namely the control of PPE (Personal Protective Equipment) as much as 100% has been controlled in the provision of personal protective equipment for workers in the production division of PT. Java Rakindo, then the next controlled value that has been implemented from the company

In engineering control, as much as 84% is controlled, where the company has implemented supervision of the work environment in the production process of the framework from high-risk potential hazards to less risky potential hazards without changing the position of the workplace. Elimination control as much as 80% has been controlled applied to the company and in administrative control there are 92% controlled and substitution control as much as 72% which still requires a level of control from the company PT. Java Rakindo.

<sup>6</sup> Deddi Septian Purnama, "Analisis Penerapan Metode Hirarc (Hazard Identification Risk Assessment And Risk Control) Dan Hazops (Hazard And Operability Study) Dalam Kegiatan Identifikasi Potensi Bahaya Dan Resiko Pada Proses Unloading Unit Di Pt. Toyota Astra Motor," No. 3 (T.T.): Hal. 67.

<sup>7</sup> Jannah Mega Raudhatin Dan Hasyim M. Hamzah, "(Risk Analysis Of Occupational And Safety Using Hirarc Approach And Job Safety Analysis Method In The Case Study Of Tower Project X In Jakarta)," T.T., Hal. 129.



## CONCLUSION

Identification of potential hazards that occur from several factors that can harm workers or the company in occupational safety and health, then identify the risk of having a work accident rate at any time and indefinitely. 2. In the workplace of the production department, the level of risk varies according to the potential hazards found in a job or activity being carried out, namely high risk in machine operation and repair activities.. In the workplace of the production department, the level of risk varies according to the potential dangers found in a job or activity being carried out, namely high risk in machine operation and repair activities. Existing risk control is provided by the company that has fulfilled the controlled needs, so workers only need to apply and have a greater sense of awareness of occupational safety and health when working with discipline on the obligation to use personal protective equipment.

## SUGGESTIONS AND RECOMMENDATIONS

Suggestions for the company to increase supervision of workers and their environment so that workers can carry out activities safely and safely, measure external environmental factors, control and evaluate risks, and make SOPs for controlling K3 risks. Improving safety performance within the company to reduce unsafe behavior that occurs in workers is considered better than focusing on accident rates. Because accidents are the end result of a series of unsafe behavior and companies only pay attention to safety when accidents increase, on the other hand behavioral safety is more proactive which tends to identify any unsafe behavior that appears so that it can be immediately addressed. For workers in the production division, they should pay more attention to the completeness of personal protective equipment, which is an obligation to be used every time the process of making concrete takes place. For further researchers to analyze the potential hazards and risks posed in a workplace more deeply.

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