# ABSTRAK

PT. TOSAN MASH merupakan sebuah perusahaan yang bergerak dibidang pelayanan jasa seperti pembuatan Guardrail. Dimana pada bagian produksi sangat berhubungan dengan mesin. Setelah dilakukan pengamatan pada produksi Guardrail Part Beam, bagian potong coil yang memiliki banyak error dan menjadi masalah utama barang cacat.karena dalam bagian potong coil terdapat kelalaian operator sehingga dapat menyebabkan potongan coil tidak sesuai ukuran yaitu 4,32 m ± 5 mm. diketahui bahwa coil panjang ukurannya 4,32 m ± 5 mm dan lebarnya 48 cm dengan ketebalan coil 1,7 mm serta berat 44 kg. untuk batas toleransi panjangnya ± 5 mm , jika kurang atau lebih 5mm maka akan mengalami kemiringan lubangnya dan langsung dianggap *reject* karena stopernya tidak pas pada proses bagian tekuk V. Hal itu tentunya sangat merugikan perusahaan mengingat perusahaan juga memiliki target produksi. Maka dengan hal tersebut dilakukanlah analisa *human error* kepada operator produksi beam bagian potong coil dengan menggunakan metode HEART dan SHERPA. Setelah dilakukan perhitungan berdasarkan analisa telah diketahui 4 *Task* dan 6 *Sub Task* kagiatan kritis. Dari 6 *Sub Task* kegiatan kritis terdapat satu kegiatan yang probabilitynya paling berpotensi menyebabkan produk cacat yaitu *Sub Task* 4.1 Menekan Tombol ON Mesin Roll serta Memastikan Lembaran Coil tepat pada Stopper yang memiliki nilai sebesar 1,6831 (*High*). Penyebab yang dapat terjadi karena operator lalai ketika memastikan ujung coil tepat pada stopper sehingga terjadi produk cacat karena alat yang tidak dapat diandalkan dan susah diguakan sehingga hasil pemotongan plat yang tidak sesuai ukuran. Setelah itu menentukan solusi perbaikan yang didapatkan dari hasil menggunakan metode SHERPA. Lalu hasil usulan perbaikan disampaikan kepada perusahaan melalui presentasi peneliti dan dilanjutkan penentuan ulang *human error probability* (HEP) setelah perbaikan dan didapatkan perbandingan HEP yang terdapat pada Tabel 4.12 Tabel Perbandingan Rekapitulasi Hasil HEP Sebelum dan Sesudah usulan design simulasi perbaikan. Setelah dilakukan perbandingan *Human Error Probability* (HEP) didapatkan hasil nilai HEP sebelum prbaikan terbesar pada kegiatan kritis yaitu *Sub Task* 4.1 Menekan Tombol ON Mesin Roll serta Memastikan Lembaran Coil tepat pada Stopper yaitu sebesar 1,6831 dan hasil nilai HEP sesudah usulan prbaikan yaitu sebesar 0,48552, maka dapat dilihat pada table perbandingan diatas bahwa nilai HEP sebelum dan sesudah simulasi perbaikan mengalami penurunan dari 1,6831 menjadi 0,48552 lalu dapat disimpulkan bahwa hasil penelitian mampu mengurangi *human error* pada produksi beam bagian potong coil serta tentunya sebagai upaya mengurangi produk cacat (*reject*).



**Kata Kunci** : PT TOSAN MASH, *Human Error Probability Assesment and Reduction Technique* (HEART), *Human Error, Systematic Human Error Reduction and Prediction* (SHERPA).

# ABSTRACT

*PT. TOSAN MASH is a company engaged in services such as the manufacture of Guardrail. Where in the production is closely related to the machine. After observing the Guardrail Part Beam production, the coil cut section has many errors and is the main problem with defects. Because in the coil cutting section there is operator negligence so that it can cause the coil cut to not match the size, which is 4.32 m ± 5 mm. It is known that the length coil measures 4.32 m ± 5 mm and the width is 48 cm with a plate thickness of 1.7 mm and a weight of 44 kg. for the length tolerance limit of ± 5 mm, if it is less or more 5mm it will experience a slope of the hole and is immediately considered rejected because the stopper does not fit in the V bending process. This is of course very detrimental to the company considering the company also has a production target. So with this, a human error analysis was carried out on the production operator of the coil cut section beam using the HEART and SHERPA methods. After calculating based on the analysis, it is known that 4 Tasks and 6 Sub Tasks are critical activities. Of the 6 sub-tasks of critical activities, there is one activity whose probability has the most potential to cause defective products, namely Sub Task 4.1 Pressing the Roll Machine ON Button and Ensuring the Coil Sheet is right on the Stopper which has a value of 1.6831 (High). The cause that can occur is because the operator is negligent when making sure the end of the plate is right on the stopper, resulting in a defective product due to an unreliable and difficult tool so that the plate cutting results are not according to size. After that determine the improvement solution obtained from the results using the SHERPA method. Then the results of the proposed improvements are submitted to the company through the presentation of researchers and continued with the determination of the human error probability (HEP) after the repair and the HEP comparison is obtained which is contained in Table 4.12 Comparison Table of the Recapitulation of HEP Results Before and After Repair. After comparing the Human Error Probability (HEP) the results of the HEP value before the largest repair in critical activities are Sub Task 4.1 Pressing the ON button of the Roll Machine and making sure the Coil Sheet is right on the Stopper is 1.6831 and the result of the HEP value after repair is 0, 48552 it can be seen in the comparison table above that the HEP value before and after the repair simulation has decreased from 1.6831 to 0.48552 then it can be concluded that the results of the study were able to reduce human error in the production of the coil cut section beam and of course as an effort to reduce product defects(reject).*

***Key Words :*** *PT TOSAN MASH, Human Error Probability Assesment and Reduction Technique (HEART), Human Error, Systematic Human Error Reduction and Prediction (SHERPA).*