

ABSTRACT

Erection girder is one of the construction stages with a high level of risk because it involves lifting heavy loads using a crane. Therefore, the implementation of Standard Operating Procedures (SOPs) is necessary to support occupational safety and operational efficiency. This study aims to evaluate the implementation of SOPs, measure crane operational efficiency, and examine the relationship between the two in erection girder work.

This study employed a case study method with a descriptive-evaluative approach at the Solo – Yogyakarta – YIA Kulon Progo Toll Road Construction Project, Section II, Package 2.2. Data were collected through observation, interviews, documentation, and work time measurements on spans P55 – P56 and P57 – P58. The evaluation was carried out using an SOP checklist, while operational efficiency was analyzed based on the cycle time and idle time indicators.

The results of the study showed that the level of compliance with the standard operating procedures (SOPs) on spans P57 – P58 was 89.58% and 87.92% on spans P55 – P56, and several implementation gaps were identified. Span P57 – P58 demonstrated better operational efficiency with an idle time of 6.69%, whereas span P55 – P56 recorded an idle time of 22.51%, which was influenced by weather conditions, work area characteristics, crane repositioning, and equipment malfunctions. The implementation of overlap between work stages helped maintain work continuity and reduce unproductive time. This study concludes that the implementation of SOPs plays an important role in ensuring safe and controlled operations. However, crane operational efficiency is also influenced by actual on-site conditions. Therefore, the implementation of SOPs must be supported by effective site management and risk control to achieve optimal crane operational efficiency.

Keywords: *erection girder, standard operating procedures (SOPs), crane operational efficiency, implementation gaps*

INTISARI

Erection girder merupakan salah satu tahapan pekerjaan konstruksi yang memiliki tingkat risiko tinggi karena melibatkan aktivitas pengangkatan beban berat menggunakan alat berat *crane*. Oleh karena itu, penerapan SOP (Standar Operasional Prosedur) diperlukan untuk mendukung keselamatan kerja dan efisiensi operasional. Penelitian ini bertujuan mengevaluasi penerapan SOP, menghitung efisiensi operasional *crane*, serta mengkaji keterkaitan keduanya pada pekerjaan *erection girder*.

Penelitian menggunakan metode studi kasus dengan pendekatan deskriptif evaluatif pada Proyek Pembangunan Jalan Tol Solo – Yogyakarta – YIA Kulon Progo Seksi II Paket 2.2. Data diperoleh melalui observasi, wawancara, dokumentasi, dan pengukuran waktu kerja pada bentang P55 – P56 dan P57 – P58. Evaluasi dilakukan menggunakan daftar simak SOP, sedangkan efisiensi operasional dianalisis berdasarkan indikator waktu *cycle time* dan *idle time*.

Hasil penelitian menunjukkan tingkat kesesuaian SOP pada bentang P57 – P58 sebesar 89,58% dan 87,92% pada bentang P55 – P56, dan ditemukan beberapa *implementation gap*. Bentang P57 – P58 memiliki kinerja operasional yang lebih efisien dengan *idle time* sebesar 6,69%, sedangkan bentang P55 – P56 memiliki *idle time* 22,51% yang dipengaruhi oleh kondisi cuaca, karakteristik area kerja, perpindahan posisi *crane*, dan gangguan peralatan. Penerapan *overlap* antar tahapan pekerjaan membantu menjaga kontinuitas pekerjaan dan mengurangi waktu tidak produktif. Penelitian ini menyimpulkan bahwa penerapan SOP berperan dalam menjaga pekerjaan tetap aman dan terkendali, namun efisiensi operasional *crane* juga dipengaruhi oleh kondisi aktual di lapangan. Oleh karena itu, penerapan SOP perlu didukung oleh pengelolaan kondisi lapangan dan pengendalian risiko yang efektif agar efisiensi operasional *crane* dapat tercapai secara optimal.

Kata kunci: *erection girder*, SOP, efisiensi operasional *crane*, *implementation gap*