

DEVELOPMENT OF A HOT WORK CONTROL-BASED SHIP REPLATING METHOD TO IMPROVE WELDING QUALITY AND WORKER SAFETY

AUTHOR NAME : EDI KESUMA WIJAYA
ID NUMBER : 1304221095
SUPERVISOR : Ir. ROMADHONI, S.T.,M.T

ABSTRACT

Ship replating work involves hot work activities such as cutting and welding that pose risks to occupational safety and weld joint quality. This study aims to develop a Hot Work Control-based replating method on the vessel TB SPGM 1307 at PT Harapan Teknik Shipyard. The research uses a descriptive method with a case study approach through observation, interviews, documentation, and document review. The analysis was conducted using HIRA, JSA, evaluation of compliance with SOP and BKI standards, as well as weld quality inspection using Visual Testing (VT) and Dye Penetrant Testing (PT). The results show an increase in PPE compliance from 78% to 98%, Hot Work Permit compliance from 70% to 100%, and toolbox meeting implementation from 60% to 100%. High risks based on HIRA decreased from 8 to 2 activities, while medium risks decreased from 12 to 5 activities. Inspection of 25 weld joints showed that 24 joints (96%) met the acceptance criteria and 1 joint (4%) required minor repair. In addition, unsafe actions decreased from 15 to 4 incidents and unsafe conditions decreased from 12 to 3 incidents. Based on these results, the implementation of the Hot Work Control method shows an improvement in weld surface quality and occupational safety in the ship replating process.

Keywords: ship replating, Hot Work Control, weld quality, occupational safety, Visual Testing (VT), Dye Penetrant Testing (PT).