Abstract

SUMARYANTO. NIM. 8216114008. *Development of a Hybrid-Collaborative (HYLAB) based Occupational Safety and Health (K3) Training Model to Improve the Competence of Pressure Vessel and Storage Tank Technicians for CPO (Crude Palm Oil) Plants in the PTPN-IV Environment of North Sumatra Province.*

This research aims to develop and evaluate a Hybrid-Collaborative (HYLAB) based Occupational Health and Safety (K3) training model for Pressure Vessel and Storage Tank (PVST) technicians in CPO factories in the North Sumatra Province. The method applied involves Research and Development utilizing the ADDIE model alongside the ISD-Dick & Carey training system. The research involved 30 PVST technicians with data collection using instruments such as observation sheets, interviews, questionnaires, pre-test and post-test questions which had been validated by experts and tested on PVST technicians. The HYLAB training model highlights the collaboration of a team of implementers, instructors and testers, with Off the Job Training and an emphasis on Job-Instruction Training and group dynamics. Training materials refer to international standards such as ASME-BPVS, API 650 standard, and Minister of Manpower Regulation No. 37 of 2016 concerning Pressure Vessels and Storage Tanks. Expert and user validation show that this model is very valid and suitable for use, with an average score of material suitability of 99% and model suitability of 87.61%. The effectiveness of this training model has been proven in increasing the competency of PVST technicians, with the average N-Gain score for both trials >75, which indicates the very effective category. The training management effectiveness test also showed very effective results, with an evaluation percentage by users reaching 97%. Thus, the HYLAB-based K3 training model can be considered very effective in improving the competency of PVST technicians at CPO factories in the PTPN-IV region of North Sumatra Province.

Keywords: Occupational Safety and Health, Pressure Vessels and Storage Tanks, CPO Factory, Hybrid, Collaborative.

Abstrak

SUMARYANTO. NIM. 8216114008. Pengembangan Model Pelatihan Keselamatan dan Kesehatan Kerja (K3) berbasis Hybrid-Collaborative (HYLAB) untuk Meningkatkan Kompetensi Teknisi Bejana Tekanan dan Tangki Timbun Pabrik CPO (Crude Palm Oil) di Lingkungan PTPN-IV Provinsi Sumatera Utara.

Penelitian ini bertujuan untuk mengembangkan dan mengevaluasi model pelatihan Kesehatan dan Keselamatan Kerja (K3) berbasis Hybrid-Collaborative (HYLAB) untuk Teknisi Bejana Tekanan dan Tangki Timbun (BTTT) di pabrik CPO wilayah Provinsi Sumatera Utara. Metode yang digunakan adalah Research and Development dengan model ADDIE dan sistem pelatihan ISD-Dick & Carey. Penelitian melibatkan 30 Teknisi BTTT dengan pengumpulan data menggunakan instrumen seperti lembar observasi, wawancara, angket, soal pretes, dan postes yang telah divalidasi oleh ahli dan diuji coba kepada Teknisi BTTT. Model pelatihan HYLAB menonjolkan kolaborasi tim pelaksana, instruktur, dan penguji, dengan pembelajaran Off the Job dan penekanan pada Job-Instruction Training serta dinamika kelompok. Materi pelatihan mengacu pada standar internasional seperti ASME-BPVS, API 650 standard, dan Permenaker No. 37 Tahun 2016 tentang Bejana Tekanan dan Tangki Timbun. Validasi ahli dan pengguna menunjukkan bahwa model ini sangat valid dan layak digunakan, dengan skor rata-rata kelayakan materi sebesar 99% dan kelayakan model sebesar 87,61%. Efektivitas model pelatihan ini terbukti dalam meningkatkan kompetensi Teknisi BTTT, dengan nilai rata-rata N-Gain score kedua uji coba >75, yang mengindikasikan kategori sangat efektif. Uji efektivitas manajemen pelatihan juga menunjukkan hasil yang sangat efektif, dengan persentase evaluasi oleh pengguna mencapai 97%. Dengan demikian, model pelatihan K3 berbasis HYLAB dapat dianggap sangat efektif dalam meningkatkan kompetensi Teknisi BTTT di Pabrik CPO di lingkungan PTPN-IV Wilayah Provinsi Sumatera Utara.

Kata Kunci: *Keselamatan dan Kesehatan Kerja, Bejana Tekanan dan Tangki Timbun, Pabrik CPO, Hybrid, Collaborative.*