

EFFORTS TO REDUCE WORKPLACE ACCIDENT RATE THROUGH IMPLEMENTATION OF UCAD IN DRILLING AND WELL INTERVENTION OPERATIONS

Nama : Helmi Indra Fauzi
NIM :24/548056/PSV/00069

ABSTRACT

The oil and gas industry carries a high level of risk, particularly in drilling and well intervention (DWI) activities. These activities carry the potential for fatal workplace accidents and massive environmental disasters. This study aims to evaluate efforts to reduce accident rates through the implementation of the Upgrading Competency & Awareness Database (UCAD) in mitigating risks across DWI operations. Despite the implementation of the UCAD system, several near-miss incidents related to equipment integrity were still recorded within the past year. This research employs a qualitative approach with a descriptive case study design. Data collection was conducted through field observations, technical document reviews, and in-depth interviews with Safety Officers and field personnel directly involved in the operations. The analysis was performed using application development methods and instrument validity and reliability testing to determine the adequacy of existing protection systems. The results indicate that the implementation of UCAD at DWI facilities generally falls into the "Poor" category, with a compliance rate of 38,5 "Efektive). However, significant gaps were found in the element of UCAD data optimization for DWI leaders to reinforce personnel competency, ensure 100% active participation, and enhance core competencies—particularly in Well Control—to achieve a risk level that is As Low As Reasonably Practicable (ALARP).

This study concludes that the cumulative participation percentage in this program has not yet been achieved. Data processing results suggest strengthening inspections and observations regarding well control equipment, dropped object potentials, hoisting equipment, working at height, line of fire, barricade & LOTO (Lockout/Tagout), electrical equipment, potential flammable hazards, and potential pressure release & pressurized line restraints. Furthermore, it is essential to improve technical competency training for DWI personnel to prevent Major Accident Hazards (MAH).

Keywords: UCAD, DWI, Major Accident Hazard.

UPAYA PENURUNAN ANGKA KECELAKAAN KERJA MELALUI IMPLEMENTASI UCAD PADA OPERASI *DRILLING AND WELL* *INTERVENTION*

Nama : Helmi Indra Fauzi

NIM :24/548056/PSV/00069

INTISARI

Industri minyak dan gas bumi mempunyai tingkat risiko tinggi utamanya untuk aktivitas *Drilling and Well Intervention* (DWI). Kegiatan tersebut memiliki potensi kecelakaan kerja fatal dan bencana lingkungan yang masif. Penelitian ini bertujuan untuk mengukur upaya penurunan angka kecelakaan kerja melalui implemenetasi UCAD dalam memitigasi seluruh risiko pada operasi DWI. Meskipun sistem UCAD telah diterapkan, masih ditemukan beberapa insiden *near-miss* terkait integritas peralatan dalam satu tahun terakhir. Penelitian ini menggunakan metode pendekatan kualitatif dengan desain deskriptif dengan pendekatan studi kasus. Pengumpulan data dilakukan melalui observasi lapangan, tinjauan dokumen teknis, serta wawancara mendalam dengan *Safety Officer*, pekerja lapangan yang terlibat langsung sesuai dengan jabatan. Analisis in dilakukan dengan menggunakan metode pengembangan aplikasi untuk menentukan kecukupan sistem proteksi yang ada. Hasil penelitian menunjukkan bahwa penerapan UCAD di Fasilitas operasi DWI secara umum berada pada kategori "Efektif" dengan tingkat kepatuhan 38.5. Namun, terdapat celah signifikan pada elemen optimasi data UCAD bagi *management* DWI untuk *reinforce* kompetensi personel, memastikan partisipasi aktif 100 %, meningkatkan kompetensi utamanya *well control*, untuk mencapai level risiko yang dapat diterima (*As Low As Reasonably Practicable* - ALARP).

Penelitian ini menyimpulkan bahwa masih belum tercapainya kumulatif prosentase partisipasi dalam program ini. Pada pengolahan data didapatkan masukan untuk memperkuat inspeksi/observasi terhadap *well control equipment*, *potential dropped Object*, *Hoisting equipment*, *working at height*, *line of fire*, *barricade & LOTO*, *electrical equipment*, *potential flammable*, *potential pressuer release & pressurized line restraint* dan meningkatkan pelatihan kompetensi teknis bagi personel DWI untuk mencegah terjadinya kecelakaan besar (*Major Accident Hazards*).

Kata Kunci: *UCAD, DWI, Major Accident Hazard.*