Escape, Evacuation and Rescue Analysis based on Consequence Modeling at a Remote Offshore Platform

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ABSTRACT

In an emergency situation, beyond the immediate risks posed by the particular initiating hazard, additional risks to personnel can arise from the process of Escape, Evacuation and Rescue (EER) itself. Therefore, reviewing more possible scenarios which may lead to any problem in case of emergency for EER process and setting proper strategies, especially in design phase of projects, is essential. In this study, an EER analysis is presented for the case of an offshore platform in South Pars Gas area in Iran. The methodology employed is; first, eight reasonable goals of escape, evacuation and rescue are defined; which are Detecting the incident and raising the alarm, Escape and reach the safe areas and facilities, Provision of muster points, Incident management, Provision of evacuation facilities, Contingency against unforeseen incidents, Abandonment and Rescue; and then, provisions and equipment for escape, evacuation and rescue as well as EER strategy are studied. In order to determine whether each of the EER goals is met or not, twenty one different fire, explosion and toxic release scenarios are developed with the scenarios taken from a HAZID study, and the consequences of these potential accidents are simulated using a consequence modeling professional software. Furthermore, the maximum estimated time to get to muster area is also calculated in different situations. The results prove that sufficient EER facilities have been considered for the platform to meet the eight EER goals.

Key words: EERA, Consequence Modeling, Jet fire, Explosion, Overpressure, escape routes, muster area, offshore facilities