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ESCAPE-EVACUATION-RESCUE RESPONSE IN ICE-COVERED REGIONS

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ABSTRACT

Emergency response planning incorporates several key factors, including the credible hazards that might precipitate an emergency at a given installation, the weather conditions that can be expected to prevail and shape the physical environment in the region, the safety measures and equipment alternatives that may be used, the people who have to escape and respond, and the interaction of these factors. Emergency response is examined in the context of offshore industry activities and shipping in ice-covered regions. The aim is to identify key issues relating to escape, evacuation and rescue in cold regions where sea ice occurs.

KEY WORDS: escape, evacuation, rescue, emergency, offshore, ice, safety

INTRODUCTION AND SCOPE

Emergency response on an offshore petroleum installation or ship involving escape, evacuation and rescue (EER) is a low frequency event, but one with potential for severe consequences. Given the prospects of significant increases in offshore petroleum exploration and production in the cold regions of the world, and corresponding increases in marine support and transportation activities, it is worth considering the demands of emergency escape, evacuation and rescue in the context of operations in cold regions and sea ice. The demands include those on personal protection, escape routes and procedures, evacuation systems and their capabilities, and means of rescue and associated support.

The aims of this paper are to highlight the broad goals and expectations of EER, identify the key factors involved in EER, and focus on the impact of the cold environment in light of the interaction between the goals and expectations and key factors.

GOALS OF EER

Overall, the key goal of EER is that, in the event of an emerging hazard scenario that requires an emergency escape, evacuation and rescue response, all personnel on board should have a reasonable expectation of avoiding harm in environmental conditions that can be reasonably expected to occur during operations. We can consider the expectations of each stage of escape, evacuation and rescue in turn.

Escape

Starting with escape, the main goal is that all personnel have recourse to provisions that allow them to escape from the potential harm posed by the emerging hazard and go to a place of relative safety. Corresponding expectations include that there be appropriate alarms to warn personnel of the circumstances, and means of communications throughout the response process; personal protective equipment, such as immersion suits (ISO 2002), warm clothing and breathing apparatus; and escape routes, muster areas, temporary refuges and embarkation stations, all with sufficient redundancy and protection.

Evacuation

The main goal of evacuation, should a decision be taken to abandon the installation, is to move all personnel, including injured people, off the installation and away from the emerging hazard in a controlled procedure. Normally, there is an expectation that a means of evacuation that is resourced external to the installation be available for all personnel. In the offshore industry, this is typically provided by helicopter. Recognizing that helicopters or other externally resourced means are not likely to always be available in adequate numbers and within response time requirements, there is an expectation that an alternative means of evacuating all personnel be available, independent of external resources. In current practice, this implies an installation-based system or systems that can operate in the local marine and sea ice conditions. Such means of evacuation should facilitate safe embarkation and launch from the installation, be able to clear the installation and hazard immediately after launch, and survive until the occupants are transferred to a place of relative safety. These procedures must be practicable in the environmental conditions that prevail at the time, within the weather and environmental limits of the equipment.

Rescue

An emergency EER response ends when personnel are transferred to a safe place where appropriate medical assistance is available. The corresponding expectations include that means of rescue be available,