Canadian Arctic Escape, Evacuation, and Rescue Standards

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ABSTRACT

Performance-based arctic escape, evacuation, and rescue (EER) standards have been developed by Transport Canada’s Transportation Development Centre. Performance-based standards set expected activity, task, and process achievement levels and goals, rather than prescribing equipment quantities, types, dimensions, and other specifications. The performance based standards were a result of an integrated research and development program and the establishment of a standards development task force consisting of experts in applicable disciplines. This paper describes the arctic EER and ISO standards, the development program, and outlines the research and development projects on which the standards have been based.

KEY WORDS: Arctic; escape; evacuation; rescue; performance-based standards.

INTRODUCTION

With the resurgence of activity in the arctic offshore, the threat to personnel in installation or transportation emergencies caused by various accidents including ice overloading, loss of buoyancy, and accidental oil and gas releases such as blowouts or major containment failures, has received increased attention from industry and regulatory authorities. In the instance of an installation or vessel emergency that threatens catastrophic failure, safety of the occupants is contingent on the reliable performance of the escape, evacuation, and rescue (EER) process. Although there are many prescriptive standards for EER, no truly goal-based performance requirements existed for open water – and certainly not for ice.

In 2000, Transport Canada’s Transportation Development Centre (TDC) initiated an EER program to develop performance-based standards (PBS) for offshore installations in Canadian waters. To facilitate the reliability assessment and consequent setting of reliability targets in the Canadian PBS, a multifaceted research and development program was initiated by TDC in parallel. The results of the work were published by Transport Canada in 2006 as Escape, Evacuation, and Rescue research project: Phase III (TP 14600E) describing the escape, evacuation, and rescue (EER) research and development program.

DEFINITIONS AND BACKGROUND

Performance-based standards (PBS) contain verifiable attributes that provide qualitative targets and quantitative measures of accepted performance. The key characteristic of PBS is their focus on what must be done, rather than on how it should be done. The difference between PBS and more traditional prescriptive standards is a prescriptive approach describes an acceptable solution while a performance approach describes the required result (Foliente, 2000).

Consider the goal of fire safety in a building. To achieve this goal, a prescriptive code would specify which materials may or may not be used for the structural frame of the building. A performance-based code would state that the building structure should be able to withstand a fire long enough for the occupants to escape safely, but would not “prescribe” exactly what materials must or must not be used.