IMO INF PAPER SUMMARY - RESPONSE TIME DATA FOR LARGE PASSENGER FERRIES AND CRUISE SHIPS

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Understanding how people behave in emergency situations within maritime settings is vital if we are to design evacuation efficient vessels and evacuation procedures for crew to follow. An essential component of this understanding is the collection and characterisation of data for human performance when responding to alarms and moving to assembly stations. Unfortunately, little data exists relating to passenger response time or for full-scale validation of evacuation models specific to maritime environments. As part of the EU FP7 project SAFEGUARD, a series of five semi-unannounced full-scale assemblies were conducted at sea on three different types of passenger vessel. From these trials two full-scale validation data-sets and five passenger response time data-sets were collected. The five response time data-sets, consisting of 2366 response time data points, represents the largest response time data-sets ever collected – on land or sea. One of the objectives of the SAFEGUARD project was to develop a series of passenger response time distributions that can be used in passenger ship evacuation analysis. Response time is defined as the time between the sounding of the alarm and the moment when passengers start purposeful movement to an assembly station.

Here we present a summary of the findings and recommendations from the SAFEGUARD project relating to the Response Time Distributions (RTD) proposed for adoption in a modified version of IMO MSC.1/Circ 1238[5]. A full paper describing this work will be presented at the "SAFEGUARD Passenger Evacuation Seminar" hosted by RINA on 30 November 2012. The full paper will be available shortly after the seminar on the SAFEGUARD website at http://www.safeguardproject.info/downloads/.

The data that is suggested for adoption is derived from two vessels. The first (RP1) is a RO-PAX vessel operated by Color Line and can carry approximately 2000 passengers and crew and over 700 vehicles. The second vessel (CS) is cruise ship operated by Royal Caribbean Cruise Lines International and has a capacity of 2500 passengers and 842 crew. The precise timing for each assembly drill was unannounced but for ethical reasons, the passengers were informed that at some time on their voyage an assembly drill would take place. It is worth noting that these assembly trials were conducted while the vessels were at sea; this is unusual as almost all ship assembly drills are conducted while the vessel is along side in port. It was important to undertake the drills while at sea as this added to the realism of the exercise and hence the collected data.

The RTD currently used in the IMO guidelines governing ship evacuation analysis are based on two assembly trials conducted on the Eurostar Roma (ER). In total 194 unique response time data points were collected on ER from which two RTDs were generated, one for the Day Case, and one for the Night Case. In the following we propose modifications to these RTDs based on the SAFEGUARD data collected from three trials on two vessels (a RO-PAX vessel (RP1) and a Cruise Ship (CS)) which consists of 2231 response time data points in total – significantly more than were used to construct the RTDs currently used in MSC.1/Circ. 1238[5] guidelines.

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