Annex 5 Helicopter Operations, Conclusions/Assumptions

The responses to the Search and Rescue Authority Questionnaire have been reviewed and several conclusions can be reached concerning the planned rule\(^1\) for requiring helicopter landing areas to be built on new passenger ships after 1 July 1999. The conclusions (see below) have been divided into 3 groups, i.e. Helicopter Operations, Helicopter Mission Statistics and Helicopter Landing Areas on ships.

**Helicopter Operations**

1) The normal flight time for SAR helicopter ranges from 2-6 hours, depending of course on the helicopter type. Most have a flight time of about 2.5-3 hours\(^2\).

2) The flight range is 300-600 NM again depending on the helicopter type and if they are equipped with auxiliary fuel tanks. Most fly at a speed of 100-130 knots. This concludes to an operating radius of 150 NM from the helicopter facility/base, assuming a round trip with 30 minutes at rescue location.

3) In order to rescue persons from aboard ships, rescue craft or from the water the weather must be sufficient to allow the crew to under Visual Flight Rules (VFR) conditions during the rescue operation (not necessarily to and from). The rules vary from country to country, but in general follow the information given below:
   - visibility requirement of 600-800 meters
   - ceiling requirement of 100-200 meters and/or clear of clouds during rescue operations

4) SAR dedicated aircraft are usually equipped to be able to fly day and night missions

5) Helicopters normally avoid flying into known icing conditions. They can however fly into light icing conditions for short periods

6) In order for a helicopter to land aboard ship, the ship should be fairly stable in the water. The Roll and Pitch requirements are as follows:
   - Roll +/- 3 degree. Depending on helicopter type and crew experience the roll could be increased to +/- 5 degree.
   - Pitch 2-2.5 degree.

7) At present if helicopters use other ships to assist in the rescue operation, winching is usually the preferred method for transferring of person to and from the helicopter. Winching times are: First Winch (coming to hover, letting down man, bring 2 persons back up): 4-5 minutes; Second and other cycles: ~2 minutes

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\(^1\) International Convention for the Safety of Life at Sea, 1974 as amended by the June 1996 SOLAS Amendments, CHAPTER III, PART B, SECTION II, Regulation 28.2: “Helicopter landing and pick-up areas”, Subject: “Requirements applicable to new passenger ships”.

--Passenger ships of 130 m in length and upwards, constructed on or after 1 July 1999, shall be fitted with a helicopter landing area approved by the Administration having regard to the recommendations adopted by the Organization.--

\(^2\) Helicopters equipped with auxiliary fuel tanks can extend their flight time 2-3 hours.
Helicopter Mission Statistics

8) The average SAR mission is around 2-2.5 hours.
9) Based on a discussion with several SAR organisations, it can be estimated that missions cancelled or shorten due to poor weather was < 5%.
10) Missions cancelled or shorten due to lack of fuel < 2% (had to return to base before the mission was considered completed).
11) In the North Sea, there are Oil Platforms that could be used for refuel or person drop-off points. In talking to the British and the Norwegian SAR organisations, there has not been any situation where the passenger drop-off option was used, in the last 10 years, for rescue of persons in a ship accident (to the best of their knowledge). There have been cases where the SAR helicopters have used the platforms for re-fuel during normal operations and SAR missions.
12) From the information made available, it was not possible to determine how many lives were saved through the use of helicopters for SAR missions (i.e. the persons would have died if the helicopter had not been available).
13) From the information made available, it was also not possible to determine how many how many of the SAR required multiple sorties to rescue all persons in the accident. In a discussion with several of the SAR organisations, it was their opinion that very few required more than one sortie (or more than one helicopter) to complete the SAR mission.

Helicopter Landing Areas on ships

The helicopter landing areas on ships will be required to handle several different types of helicopters. At present the DNV Rules for Ship Classification are considered to be generic rules that would apply to helicopter landing areas on a case-by-case base. These rules would have to be revised mainly to account for a standard size pad to be used for emergency landings (pads would have to be design to a standard size in order to accommodate most helicopter types now used for Search and Rescue Operations). Based on the survey results, the following dimensions would cover over 90% of helicopters presently used for SAR missions.

14) Need landing pad of 12x12 meters (this is the area on which the helicopter is expected to place its landing gear).
15) Require a rotor clearance area of 23x23 meters (area which must remain clear of obstacles in order to allow clearance for the rotor system).
16) Landing pad area should be deigned for a helicopter weight of 10,000-Kg (22,5000-lbs). This is maximum helicopter lift off weight.