Offshore Helicopter Safety Inquiry
The Honourable Robert Wells, Q.C., Commissioner

Submissions in relation to Phase II of the Offshore Helicopter Safety Inquiry by Helly Hansen Canada Limited

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Introduction

At the commencement of the Offshore Helicopter Safety Inquiry (the "Inquiry"), Helly Hansen Canada Limited sought and received limited standing on the grounds that it was the supplier of helicopter transportation suits to the operators of the offshore oil installations in the Nova Scotia and Newfoundland and Labrador offshore areas (the "Operators"). At a meeting of the Inquiry on March 9, 2011, Helly Hansen Canada Limited was granted full standing for Phase II of the Inquiry. Although granted full standing, Helly Hansen Canada Limited has limited its submissions to the issues surrounding the helicopter transportation suits.

Update on Safety Initiatives

HTS-1 Suit System

As part of Helly Hansen Canada Limited's commitment to continually improve the effectiveness and comfort of the helicopter transportation suits, it embarked on major design changes known as the HTS-1 suit project on December 5, 2008. As previously outlined for the Inquiry, the HTS-1 suit is a modification of the E-452 suit that was only possible after Helly Hansen Canada Limited received approval from the Operators and Transport Canada to produce a suit that only met the aviation suit standards, rather than also having to meet the marine abandonment suit standards.

The HTS-1 has an internal adjustable suspension system as well as a new hood design and redesigned wrist cuffs. The gloves and cuffs now have more stretch for ease of donning and doffing. The hood is now neoprene and has an adjustment strap to allow a better fit, in addition, the HTS-1 has options for different sizes of hoods, boots, cuffs and gloves. In addition to being a better fitting suit, the HTS-1 is less bulky which improves the mobility of the suit.

The HTS-1 received initial approval as an aviation suit on November 25, 2009. By July 2010, the HTS-1 suit was in use by all passengers travelling to the Newfoundland and Labrador offshore area. On July 6, 2010, the HTS-1 suit received approval from Transport Canada as a marine abandonment suit.

On May 12, 2009, the Helicopter Emergency Underwater Breathing Apparatus ("HEUBA") units were added to the HTS-1 suits. Helly Hansen Canada Limited also added a HEUBA cover, as well as low profile exhaust valves, in order to reduce snag hazards.

Suit Fittings

As part of the return to flight process following the crash of Cougar Helicopter Flight 491, the Operators engaged Helly Hansen Canada Limited to conduct individual suit fittings on all personnel travelling offshore before being cleared to fly. The individual suit fittings were conducted at the Cougar Heliport, at offsite fitting sessions and at the

Helly Hansen suit maintenance facilities in St. John's. The fitting process consists of the following categories:

1) donning of the suit;

2) verification of the ability to zip up the suit;

3) size verification;

4) checking of face and wrist seals;

5) mobility checks.

Helly Hansen Canada Limited provided training to Cougar Helicopter's personnel in order to enable them to conduct suit fittings at the Cougar Heliport as required. However, Helly Hansen Canada Limited continues to conduct individual suit fittings on a daily basis – five days a week, as well as other times when needed outside of the regularly scheduled daily sessions.

Although the suspension system in the new HTS-1 suit accommodates a wider range of heights, Helly Hansen Canada Limited developed and obtained approval for a 2XS suit for smaller size passengers. During the individual fitting process, Helly Hansen Canada Limited had to obtain custom made suits for several individuals who fell outside of the range of the standard suit sizes. Fourteen (14) such custom made suits have been produced and seven (7) more custom made suits are in the process of production. It takes several months to obtain approval from Transport Canada for each custom made suit.

Once a passenger has been individually fitted, that passenger's suit size is kept on file by Cougar Helicopters in order to ensure that the passenger is provided with the same suit size for every flight.

Canadian General Standards Board ("CGSB")

Helly Hansen Canada Limited is currently actively involved in the CGSB committee that is reviewing the helicopter transportation suit standards. The CGSB is considering various issues with respect to the helicopter transportation suits, including revisions regarding the test methods for various components of the suits, the proper test clothing to be worn under the suit system during the tests and the conducting of tests in realistic conditions involving wind speed simulators, wave generators and rain generators.

The CGSB committee is scheduled to meet in June 2011 in order to discuss the latest draft revisions and any issues arising.

Transportation Safety Board of Canada ("TSB") Report

The TSB Report touched on a couple of issues in relation to the helicopter transportation suits, both of which were discussed in our previous submissions to the Inquiry:

1. The first issue is in relation to the fit of the suits. The TSB noted that the E-452 suit was designed to function with up to 654 grams of water in the suit, however following the crash, more than 654 grams of water entered the survivor's suit and the

survivor's body temperature dropped rapidly. The TSB made the following conclusion with respect to the reason for the leakage:

> "The water ingress was likely due in part to inadequate PTSS seals around the face (hood seals) and wrists (wrist seals) resulting from the survivor wearing a PTSS that was too big."
>
> *Transportation Safety Board of Canada- Aviation Reports – 2009-A09A0016, s. 1.15.9*

The TSB noted that when the E-452 suits were first introduced, suit sizing was carried out using visual estimates based on height and weight, hood donning ability and the passenger's assessment of mobility. This approach confirmed mobility but it did not necessarily confirm that the passenger had the proper suit size and seal. The TSB noted that many passengers based their assessment of suit size on comfort rather than fit. A properly fitted suit is somewhat uncomfortable and therefore most passengers selected a suit that was comfortable, but too large. The TSB concluded as follows:

> "Relying on visual estimates of height and weight, and passenger assessments of hood donning ability and mobility, without confirmation of PTSS size through functional testing performed by PTSS technicians may result in passengers wearing inappropriate PTSS sizes. The use of improper PTSS fitting techniques may result in unacceptable levels of water ingress and a subsequent rapid loss of body temperature, following a ditching or crash at sea."
>
> *Transportation Safety Board of Canada- Aviation Reports – 2009-A09A0016, s. 2.7.4*

As noted above, Helly Hansen Canada Limited commenced individual suit fittings for all passengers travelling offshore in March 2009, at the request of the Operators. In her expert testimony before the Inquiry, Dr. Susan Coleshaw testified that such individual suit fittings are not normally done in the industry. She stated that suit manufacturers normally provide a range of suits and it is up to the individual to choose their own suit size. She also stated that if an individual has an ill-fitting suit, there was some responsibility on the individual to ask for a different sized suit. As acknowledged by Dr. Coleshaw, the Operators have addressed the fit issue by contracting with Helly Hansen Canada Limited to conduct individual suit fittings for all workers travelling offshore before they are cleared to fly. These individual suit fittings continue to be performed on a daily basis by Helly Hansen Canada Limited.

2. The second issued addressed by the TSB is in relation to the design of suits to meet both the aviation suit standards and the marine abandonment suit standards. The TSB noted that there is considerable overlap in the buoyancy and thermal protection requirements between both standards. As a result, this produces a suit that represents a compromise between two very different applications. The TSB noted that in a helicopter ditching, an individual may be required to maneuver through small openings in order to egress from the helicopter. If the helicopter transportation suit is too bulky or too buoyant, egress may not be possible. The TSB concluded as follows:

> "Passenger Transportation Suit Systems (PTSS) designed to meet the standards for marine abandonment have increased buoyancy and floatation capabilities. While useful

in a marine abandonment situation, the increased suit buoyancy and bulkiness may interfere with a successful egress from a submerged helicopter."

Transportation Safety Board of Canada- Aviation Reports – 2009-A09A0016, s. 2.7.3

Finally, the TSB made a specific finding that the E-452 suits met the CGSB standards:

"The E-452 PTSS met the Canadian General Standards Board (CGSB) standards and was considered adequate for the risks of the operational environment at the time of the occurrence."

Transportation Safety Board of Canada- Aviation Reports – 2009-A09A0016, s. 3.3

Recommendations

Helly Hansen Canada Limited reiterates the recommendations contained in the submissions which it filed in Phase I of the Inquiry. In particular, we submit that the TSB report supports the first two recommendations noted as follows:

"1) Remove the requirement for dual approval with respect to the helicopter transportation suits. The suits should only be required to meet the Transport Canada aviation suit standards and not be required to also meet the Transport Canada marine abandonment suit standards.

2) Confirm that offshore workers have a level of personal accountability for their own safety in helicopter transportation.

We submit that the current CGSB review supports the following recommendation contained in our previous submissions:

> "4) Require that future testing of the helicopter transportation suits recreate as realistically as possible the conditions where the suits will be used in order to obtain an accurate assessment of their performance in real world scenarios."

Conclusion

Since the tragic events of March 12, 2009, there have been significant efforts to improve the safety of helicopter transportation to the Newfoundland and Labrador offshore area. Helly Hansen Canada Limited has continued its efforts to improve the effectiveness and comfort of the helicopter transportation suits as well as being an active participant in the CGSB committee that is reviewing the helicopter transportation suit standards. Helly Hansen Canada Limited is proud to have played a role in the important work of this Inquiry, which has already made substantial recommendations for improved safety in this area.

All of which is submitted on behalf of Helly Hansen Canada Limited.

DATED at St. John's, Newfoundland and Labrador, this 15th day of April, 2011.

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