EXHIBIT/P-00119

Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

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Our File Reference
825-A09A0016-D3-A1

07 December 2009

Martin Eley
Director General Civil Aviation
Transport Canada
330 Sparks Street,
Place de Ville, Tower C,
5th Floor
Ottawa, Ontario
K1A ON5

Re: AVIATION SAFETY ADVISORY A09A0016-D3-A1
Sizing of Passenger Transportation Suit Systems

Dear Mr. Eley,

On 12 March 2009, a Cougar Helicopters Inc. (Cougar) Sikorsky S-92A registered C-GZCH, with 16 passengers and 2 flight crew, was enroute from St. John's, Newfoundland and Labrador, to the Hibernia oil production platform. Twenty minutes from St. John's, the flight crew noticed an indication of low oil pressure to the main gear box (MGB). The crew declared an emergency and diverted the flight back to St. John's. At approximately 30 nautical miles from St. John's, the helicopter impacted the ocean and sank in 178 meters of water. There was one survivor and 17 fatalities.

All passengers were wearing model E-452 passenger transportation suit systems (PTSS) made by Helly Hansen Canada Limited (Helly Hansen). The E-452 PTSS is designed to function well with up to 700 milliliters (ml) of water ingress due to leakage. The one survivor of the accident had been provided with a large size PTSS. According to the survivor's body measurements, a medium size PTSS would have been a more appropriate size. During the post-impact sequence of events, more than 700 ml of water entered the survivor's PTSS and the survivor's body temperature dropped rapidly. 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. The TSB investigation into this occurrence (A09A0016) is ongoing.

The E-452 PTSS was introduced to service in the fall of 2007 through a coordinated effort of the east coast offshore operators[1], Helly Hansen and Cougar Helicopters. At that time, determination of PTSS size was based on visual estimates of height and weight, hood donning ability and the passenger's assessment of mobility. A confirmation of appropriate PTSS size based upon passenger measurements or physical checks of the hood and wrist seals was not performed by PTSS technicians during the PTSS introduction phase in 2007 or during

1 The east coast offshore operators are Exxon Mobil, Husky Energy and Suncor Energy Inc (formerly Petro-Canada).

subsequent pre-flight sizing performed at the heliport. This likely led to many passengers wearing PTSS that were too big.

Beginning on 18 May 2009, on behalf of the east coast offshore operators, Helly Hansen personnel started working with Cougar personnel at the heliport to ensure that all employees of the east coast offshore operators were wearing the appropriate size PTSS. The resizing was completed by performing a functional assessment that included ensuring adequate sealing around the wrists and face as well as appropriate mobility. When the seals or mobility were less than adequate, passengers underwent a full body measurement. The measurements were compared to E-452 user dimension charts and assessed by the Helly Hansen design team to ensure that the passenger was assigned the correct PTSS size for their body measurements.

Through the resizing process, it was found that, when wearing their original PTSS size, approximately 15% of passengers could not achieve adequate seals while demonstrating appropriate mobility in the PTSS. Many of these passengers were accommodated through the provision of a smaller standard PTSS size. Other passengers were accommodated through modifications to the PTSS such as the substitution of smaller components from the existing PTSS size range, usually a smaller hood. The offshore operators anticipate that less than 1% of the workforce will still require fully customized PTSS.

The TSB is concerned that 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. During emergency situations, passengers wearing an inappropriate PTSS size may be subjected to unacceptable levels of water ingress (greater than 700 ml) and subsequent rapid loss of body temperature.

Although the issue appears to have been resolved for Canada's east coast offshore operators, Transport Canada may wish to inform other operators about the importance of confirming appropriate PTSS sizes.

Yours sincerely,

Mark Clitsome
Director, Air Investigations Branch

cc: [redacted], Division Manager Safety Recommendations and Analysis, FAA
[redacted], Executive Director, EASA
[redacted], Director, Policy and Regulatory Services, Transport Canada
[redacted], Manager, Safety Evaluation and Standards, Transport Canada
[redacted], Manager - Atlantic Canada, Canadian Association of Petroleum Producers
[redacted], Manager, Environment Health & Safety, Suncor Energy Inc.
[redacted], President and CEO, Helicopter Association of Canada
[redacted], President, Helly Hansen Canada Limited

BACKGROUND INFORMATION

Occurrence No. :	A09A0016
Related Occurrences:	M04W0034, see the stand-alone report entitled *Immersion Suit Issues* for information on PTSS sizing.
Safety Communication No. :	A09A0016-D3-A1
TSB Contact:	Mike Cunningham Investigator in Charge Email: mike.cunningham@tsb.gc.ca Phone: (902) 426-2861

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TYPES OF TSB SAFETY COMMUNICATIONS

GENERAL

The purpose of a safety communication is to ensure that identified risks are communicated to those persons or organizations best able to effect change to convince them to take remedial action.

SAFETY INFORMATION LETTERS

Safety information letters are generally concerned with safety deficiencies posing relatively low risks, and are used to inform regulatory or industry stakeholders of unsafe conditions that do not require immediate remedial action. Safety information letters are used to pass information for the purposes of safety promotion or to support or clarify issues that are being examined by a stakeholder.

SAFETY ADVISORY LETTERS

Safety advisory letters are concerned with safety deficiencies that pose low to medium risks, and used to inform regulatory or industry stakeholders of unsafe conditions. A safety advisory letter suggests remedial action to reduce risks to safety.

SAFETY CONCERNS

Safety concerns focus on an identified unsafe condition for which there is insufficient evidence to validate a systemic safety deficiency. However, the risks posed by this unsafe condition warrant highlighting. A safety concern provides a marker to the industry and the regulator that the Board has insufficient information to warrant further recommendations at this time; however, as more data and analysis become available, the Board will return to this unsafe condition if it is not readily redressed.

SAFETY RECOMMENDATIONS

The *Canadian Transportation Accident Investigation and Safety Board Act* (*CTAISB Act*) makes specific provision for the Board to make recommendations to correct identified safety deficiencies. Recommendations are used to address those systemic safety deficiencies posing the highest risks to the transportation system and, therefore, warranting the highest levels of regulatory and corporate attention.

RESPONSES TO TSB SAFETY COMMUNICATIONS

The *CTAISB Act* requires that federal ministers provide formal responses as to actions taken or planned in response to TSB recommendations. The Act does not mandate responses by other stakeholders to whom Board recommendations are issued. Notwithstanding, these stakeholders are requested to provide a response, and normally do so.

Although responses to other forms of safety communications are not requested or expected, the TSB often receives responses to safety advisory and safety information letters, and the substance of these responses are reflected in the Board's investigation report.